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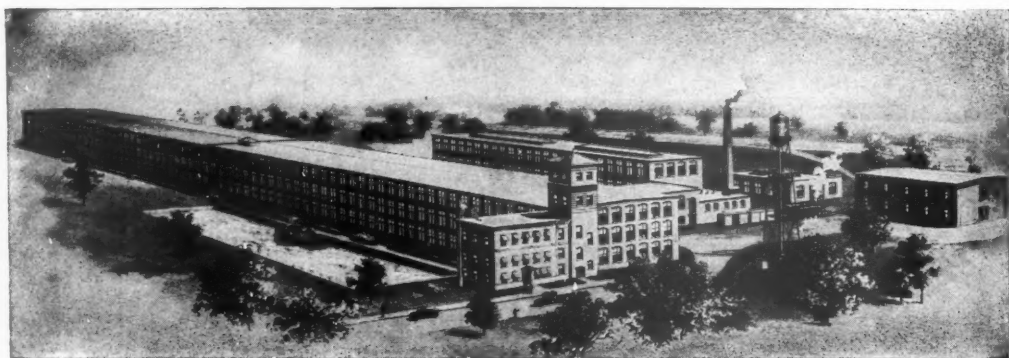


Aerial view of the INLAND EMPIRE PAPER COMPANY'S sulphite and groundwood pulp and paper mill at Millwood, Washington, seven miles east of Spokane. An improvement program begun in March, 1936, is now largely completed, enabling the company to produce higher grades of sulphite and groundwood papers.

# PACIFIC PULP & PAPER INDUSTRY

MARCH - 1937

Vol. 11 • No. 3



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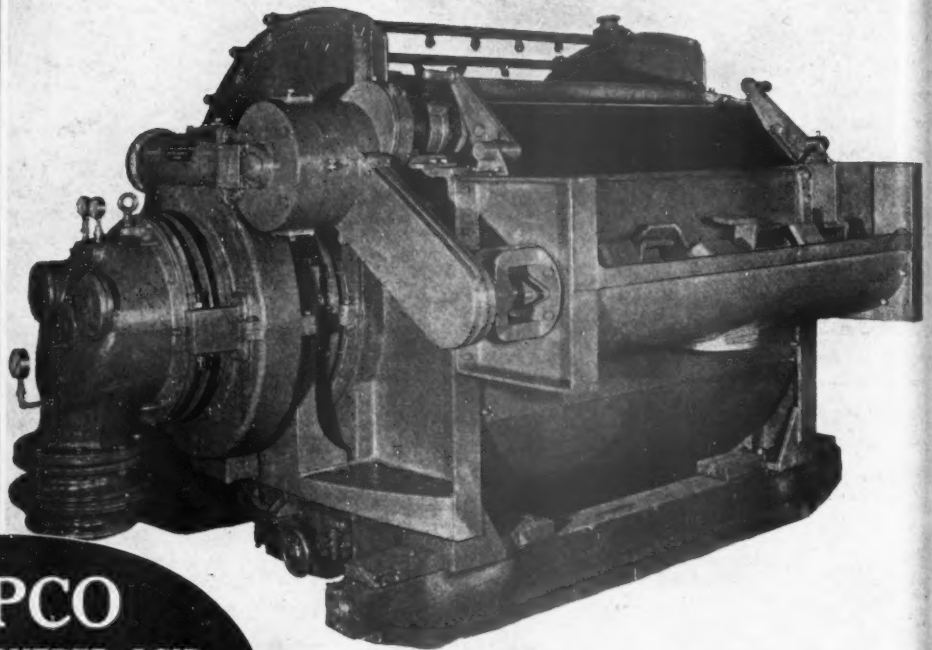
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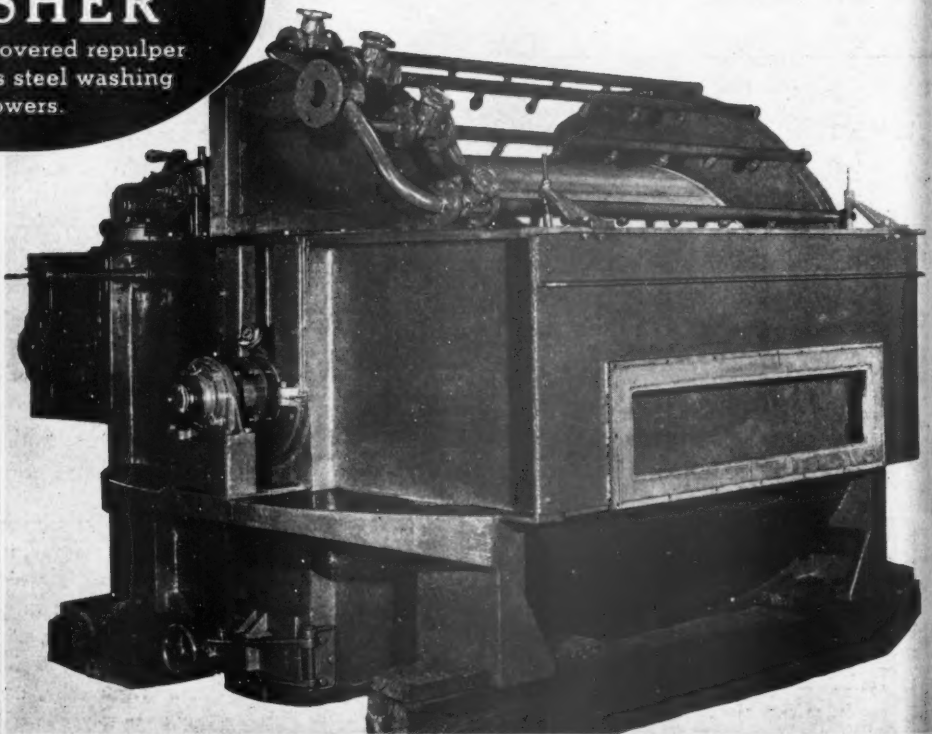
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## **Pacific PULP & PAPER Industry**

*The Journal of the  
Pacific Coast Industry*

MARCH • 1937

Vol. 11 • No. 3

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## Sweden Chief Source Of Imported Pulp in 1936

44.5% of Pulp Imports From Sweden;  
29.4% From Canada; 13.6% From  
Finland—87.5% of Pulp Imports  
From Three Countries

Sweden continued during 1936 to be the principal source of wood pulp imported into the United States. Figures compiled from U. S. Department of Commerce official reports issued monthly show that during the last calendar year a total of 2,277,829 short tons of 2,000 pounds, air dry weight, of all kinds of pulp, mechanical and chemical, was imported into the United States, valued at \$82,891,000. Of this total Sweden supplied 1,014,809 short tons of a declared value of \$34,199,656, as compared with 898,875 short tons of a value of \$30,200,898 in 1935; 808,499 tons of a value of \$24,654,958 in 1934, and 897,701 tons of a value of \$23,996,698 in 1933.

Pulp imported from Sweden comprised 44.5 per cent of the total pulp importations into the United States last year, against 46.4 per cent of the total in 1935; 44.6 per cent in 1934, and 46.2 per cent in 1933.

Imports of chemical pulp into this country from Sweden last year aggregated 992,435 short tons, valued at \$33,820,806, while ground wood receipts from that country amounted to 22,374 short tons of a value of \$378,850, compared with 876,473 short tons of a value of \$29,829,144, and 22,402 short tons of a value of \$371,754, respectively, during 1935.

Unbleached sulphite imports from Sweden were 425,753 short tons of a declared value of \$14,492,654, against 377,320 tons of a value of \$13,068,544 in 1935, while bleached sulphite imports of Swedish origin amounted to 67,309 tons of a value of \$3,011,668, against 69,237 tons of a value of \$3,096,319 in 1935.

Unbleached sulphate or kraft pulp imported from Sweden last year totalled 457,912 short tons of a value of \$14,005,839, compared with 400,654 tons of a value of \$12,058,365 in 1935, and bleached sulphate imports were 41,461 tons of a value of \$2,310,645, contrasted with 29,262 tons valued at \$1,605,916 in 1935.

### **From Canada**

Next to Sweden, the country serving as the principal source of supply of wood pulp imported by the United States is our neighbor to the North, the Dominion of Canada. Last year importations of all kinds of pulp, including mechanical and chemical, into the United States from Canada reached a total of 670,962 short tons, valued at \$27,099,612, according to figures compiled from official U. S. Department of Commerce reports issued monthly, showing an appreciable increase in quantity and value over the 532,158 short tons of a value of \$22,444,200 in 1935, and comparing also with 540,873 tons of a value of \$20,198,321 in 1934.

Imports from Canada last year constituted 29.4 per cent of all the pulp im-

ported into the United States, against 27.5 per cent in 1935, and 29.8 per cent in 1934.

The United States imported 281,062 short tons of bleached sulphite of a value of \$15,295,458 from Canada during the last calendar year, against 225,773 tons of a value of \$12,532,251 in 1935; 89,359 short tons of unbleached sulphite of a value of \$2,934,325, against 67,404 tons of a value of \$2,300,488 in 1935; 62,216 short tons of unbleached kraft pulp of a value of \$2,079,726, against 43,549 tons of a value of \$1,472,336 in 1935; 55,244 short tons of bleached sulphate of a value of \$3,294,067, against 51,119 tons of a value of \$3,424,897 in 1935; 12,737 short tons of soda pulp of a value of \$565,571, against 7,985 tons of a value of \$347,280 in 1935, and 170,344 short tons of ground wood of a value of \$2,930,465, against 136,112 tons of a value of \$2,360,383 in 1935.

### **From Finland**

Imports of wood pulp into the United States from Finland showed a further increase during the last calendar year. According to statistics compiled from the monthly reports issued by the U. S. Commerce Department, a total of 310,919 short tons of pulp of all classes, mechanical and chemical, valued at \$10,421,361, was imported into the United States from Finland during 1936, comparing with 266,492 short tons of a declared value of \$8,890,747 in 1935, and 216,273 tons of a value of \$6,734,505 in 1934.

Finland is the third principal national source of supply of wood pulp imported into the United States, being exceeded only by Sweden and Canada.

Last year's total imports of Finnish pulp comprised 13.6 per cent of all the pulp of all kinds imported into the United States, as against 13.7 per cent in 1935; 11.9 per cent in 1934, and 11.9 per cent in 1933.

Imports of unbleached sulphite into this country from Finland in 1936 amounted to 157,324 short tons of a value of \$5,441,726, against 146,166 tons of a value of \$5,190,491 in 1935, while bleached sulphite receipts were 31,131 short tons of a value of \$1,431,315, against 29,550 tons of a value of \$1,344,911. Unbleached kraft imports from Finland were 87,325 short tons of a value of \$2,789,362, against 62,173 tons valued at \$1,766,856 in 1935 and bleached sulphate imports were 5,440 short tons of a value of \$226,014, contrasted with 4,113 tons valued at \$159,585 in 1935. Ground wood imports from Finland last year were 29,699 short tons of a value of \$532,944, compared with 24,490 tons valued at \$428,905 in 1935.

## Pulp and Paper Imports, Exports, for 1936

The Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, recently announced the total import and export figures for pulp and paper base stocks during 1936.

Imports of paper base stocks, including pulpwood, wood pulp, rags and all other pulp, for the year 1936 were valued at \$98,919,394 as compared with \$82,043,697 for 1935. Of this total amount, \$9,481,914 was pulpwood; \$82,836,228 wood pulp; \$54,772 all other wood pulp; \$4,673,041 rags for paper stock and, \$1,873,639 all other paper stock, during 1936, as against \$7,760,700 pulpwood; \$70,734,847 wood pulp; \$26,074 all other wood pulp; \$2,411,424 rags for paper stock; \$1,110,652 all other paper stock, for the year 1935. Total imports of 1936 paper base stocks represent a gain of 20.6 per cent over 1935. A small gain was noted in the total amount of pulpwood during 1936 compared with 1935, there being 1,209,760 cords and 1,037,332 cords imported respectively. Likewise, wood pulp imports totaling 2,277,500 tons in 1936 gained over the total amount 1,933,249 tons during 1935 by 17.8 per cent. These gains in wood pulp were general, no particular class showing any outstanding increase in comparison with 1935.

Imports of paper and manufactures during 1936 totaled \$110,112,348 as compared with \$93,443,916 for 1935. Of

this amount, newsprint represented 87.8 per cent during 1936 and 88.0 per cent for the year 1935; 2,751,580 tons of newsprint were imported during 1936 as compared with 2,383,315 tons in the preceding year, or a gain of 15.4 per cent.

All other paper totaled \$13,392,878 in 1936 and \$11,178,649 in 1935, or a 19.8 per cent gain in 1936 as compared with 1935.

Exports of paper base stocks during the year 1936 aggregated \$11,984,251 as against \$9,890,499 for 1935, representing an increase of 21.2 per cent. Sulphite pulp, bleached and unbleached, gained 26.2 per cent in 1936 compared with 1935 exports. During 1936, 119,528 tons of bleached sulphite and 68,043 tons of unbleached sulphite were exported. This figure gives bleached sulphite a 36.3 per cent lead over unbleached sulphite.

Paper and paper products totaled \$22,460,542 during 1936 and \$20,519,220 in 1935, or a gain of 9.5 per cent. Losses were registered in newsprint, book, cover, old and overissues, bristols and bristol board, other paper board, wall board and envelopes during the year 1936 as compared with 1935 figures. All other paper and paper products showed gains sufficient to bring the total value nearly 10 per cent above 1935. Newsprint showed a loss of 35.2 compared with 1935, old and overissues decreased 17.0 per cent, bristol boards 21.44 per cent and other paper boards 12.7 per cent.

### Hawley Makes Substantial Progress

For the year ending December 31, 1936, the Hawley Pulp & Paper Company of Oregon City, Oregon, reports a net loss of \$35,247, after depreciation, amortization of bond discount and expense, and interest on funded debt.

This compares very favorably with a net loss for the year ending December 31, 1935, of \$227,493. Since the company is primarily a news print producer and in view of the very small increase in the price of news print within the past year, the above showing is considered in the industry to be exceptionally good.

The improvement in the Hawley position was brought about by a combination of careful management, a higher operating to capacity ratio, the development of higher grades and increased prices on grades produced other than news print.

During 1936 the company purchased and retired bonds amounting to \$126,247 and in 1935 \$184,229 in bonds. These were credited to surplus and not included in earnings.

The Hawley Pulp & Paper Company still has a settlement pending with the insurance companies for the loss by fire of its Milwaukee, Oregon, cut-up plant. Undepreciated book value of the Milwaukee plant was \$191,839 but the company offered to settle for \$111,990.76. The insurance companies offered but

\$65,000. Suit has been filed against the insurance companies for \$111,990.76.

During 1936 funded debt was reduced \$287,500 to \$1,407,000. Current assets as of December 31, 1937, were \$918,371.86 and current liabilities \$249,605.14.

### Yribanem Moves To Vancouver

Louis Yribanem, formerly of the San Francisco office of the Pacific Mills, Ltd., has moved to the company's Vancouver office where he is assistant to Harry Pym, manager of export sales.

### California Fruit Wrap Installing Suction Press

The California Fruit Wrapping Mills of Pomona will early in April install a rubber covered suction press on number one machine, Yankee type, according to F. O. Fernstrom, president of the company. Another addition to the present equipment will be a hood of a new type made by the J. O. Ross Engineering Company.

Charles G. Frampton, superintendent of the plant, reports that they are operating under a rush schedule in an effort to catch up with orders which piled up during the delay in production caused by the recent marine strikes.

### Powell River Denies Machine Rumor

The time is not ripe for further increasing the productive capacity of Powell River Company, stated Harold S. Foley, executive vice-president, when asked to confirm reports that the big British Columbia newsprint organization was planning to install another machine.

Mr. Foley said the company had been approached by manufacturers of newsprint machines recently, but that there had been no sale. This might have started the crop of rumors, he said.

"We have the power for another machine," said Mr. Foley. "The Lois River development made provision for that. But the state of the market does not warrant extension of our paper making facilities just now. There is still a tremendous demand for newsprint, but the price is a long way from being right. Until there is a substantial improvement in prices, Powell River will stay its present capacity."

The company's average daily tonnage, with seven machines operating, was 661.72 tons in January.

### Oregon Pollution Bill Aimed at Sewage

Senate Bill 392, introduced last month in the Oregon legislature, constituted a real threat to the pulp and paper industry, but before passage was rewritten in such manner that the industry will not be affected. It was passed by both houses as S. B. 414.

This stream pollution bill, as originally written, would have forced all pulp and paper mills on Oregon streams to close within 90 days. It classified the disposal of all waste of any kind in streams as pollution, which was declared illegal. The main purpose of the sponsors of the bill, however, was to control the disposal of sewage by municipalities, so the bill was amended and made specific in this respect. As finally passed, the bill does not apply to industrial waste, hence will not affect industry.

Pulp and paper men who appeared before the legislative committee and took an active part in having the bill amended, included J. C. Compton, president of the Spaulding Pulp & Paper Co.; Joseph R. Frum, Crown Willamette tax agent, and B. T. McBain, pulp and paper consultant.

### Collins Elected Chairman of St. Helens Board

E. S. Collins of Portland was elected chairman of the board of the St. Helens Pulp & Paper Company at a meeting of the board of directors February 26th. Mr. Collins succeeded the late H. F. McCormick.

Other directors elected: Max Oberdorfer, president and general manager; Dr. Robert H. Ellis, vice-president, and Irving T. Rau, secretary-treasurer.

### Robinson Now Camas Safety Supervisor

J. F. Robinson, former paymaster for the Camas mill of the Crown Willamette Paper Company, has been appointed safety supervisor and will be in charge of all safety work at the Camas mill under J. E. Hanny, mill manager.



## Cheaper Water Is Tacoma Objective

The development of an adequate supply of cheap industrial water was recently adopted as a major community objective by the Tacoma, Washington, Chamber of Commerce. The Tacoma Ledger said the reason for this new objective was:

"Tacoma, most logical of locations for pulp mills, with a fine port backed by some of the best hemlock forest stands west of the Cascades, is losing out in the location of pulp mills solely on the basis of industrial water costs, the Chamber of Commerce committee decided after protracted study.

"The development of the pulp industry in the Pacific Northwest is the most significant industrial change taking place here, it was agreed . . . Unless early and effective action is taken to overcome Tacoma's one handicap, the city will lose out in the establishment of remaining units of this great basic industry.

"A special committee was authorized for the study of means to supply Tacoma with cheap industrial water, in co-operation with the city utility department. Any recommendations of the committee are almost certain to be revolutionary in their character, since the reported difference between the prices quoted pulp mills for water in Tacoma and those quoted elsewhere is great. The Tacoma water department recently concluded a contract with the St. Regis Kraft Company looking towards the reopening of that company's plant, which calls for about \$17 per million gallons, and this was regarded as giving the company the

last possible advantage for its heavy demands. Prices of as low as \$7 or \$8 per million gallons are said to be quoted by some cities.

### Heavy Debt Burden

"Through no particular fault of the present administration of the city water department, it was reported to the chamber board, the department is loaded down with bond interest and redemption charges which make the meeting of competitive water prices impossible under the present setup. Tacoma got started badly with an early purchase of a private water system at excessive cost, it is held, then built a long pipe line to the Green River in wood which deteriorated rapidly because of poor construction, and found itself up against replacement costs running into the millions of dollars. Wells have been added for auxiliary and safety supply.

"Enough water is available for two pulp mills now here, but an expensive additional distribution line must be built to the tideflats. By metering all services and stopping waste, enough water might be saved to supply one more pulp plant without adding to the supply, it is asserted. But under any circumstances possible now, the price must remain an insurmountable obstacle, it is claimed.

"The problem of attracting more pulp mills became serious last year. In a call on C. R. McMillin, executive vice president of the St. Regis Kraft Company in New York, Secretary T. A. Stevenson of the local chamber was told a year ago that Tacoma should be making every effort to put itself in position to bid for pulp plants. With supply of pulp wood

diminishing in Minnesota and other northern states, the industry was moving to the Pacific Coast, Stevenson was warned. The movement is so far under way already that the use of hemlock this year will be 30 per cent over that of last year, the chamber board was told yesterday by Corydon Wagner, vice president of the St. Paul and Tacoma Lumber Company, which is logging in the region of great hemlock stands on the lower slopes of Mount Tacoma.

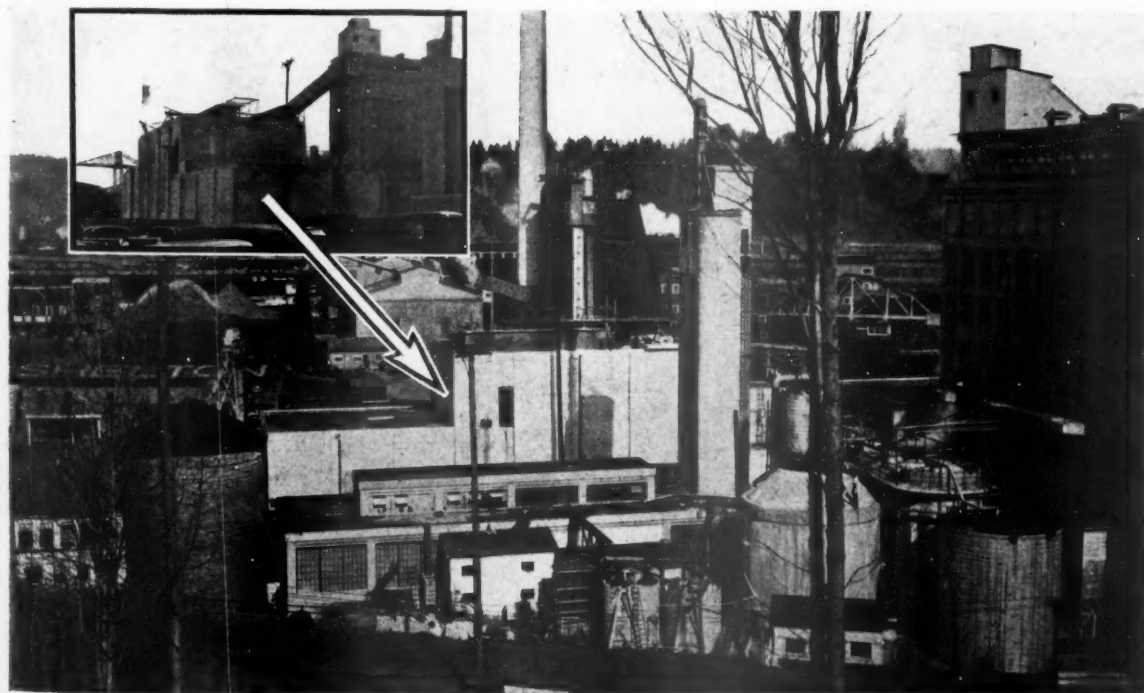
"One hope is that Tacoma may not have to quote quite so low a water rate as some communities to attract pulp concerns, since the city has some other attractions which cannot be duplicated elsewhere. Industrial power rates are one such attraction. Transportation facilities are better than at many points. The amount of hemlock within easy reach is still something to bargain with."

## Ray Schadt Visits Northwest Mills

R. J. Schadt, San Francisco, assistant to A. Bankus, vice-president of the Crown Zellerbach Corporation, was in the Pacific northwest in March on a visit to the firm's offices and mills. He expected to be gone two weeks.

## Williams Visiting Certain-teed Plants

Frank Williams, general superintendent of Certain-teed Products Corp., Richmond, Calif., has been gone from the plant for six weeks on an extended trip visiting the eastern plants of the company.



RAINIER CONSTRUCTION NEARING COMPLETION

Construction of the new unit of the Rainier Pulp & Paper Company at Shelton, Washington, was nearing completion early in March >>> Pulp in semi-dry form will be shipped by barge from the expanded Shaffer Pulp Company unbleached sulphite pulp mill at Tacoma, screened, bleached and dried in the new unit show in the above pictures >>> Two views of the new building which houses the drying machine are shown in the large picture and in the small insert >>> The drying machine, of the Vertical Dryer type, was built by the Black-Clawson Company >>> It was turned over for the first time about the 6th of March and shortly thereafter began operation >>> Approximately 120 tons of rayon type bleached sulphite pulp will be dried on the new machine every 24 hours.

## New Pomona Paper Products Plant in Operation

New to the paper industry of southern California is the Pomona Paper Products, Inc., a subsidiary of the Marcallus Manufacturing Company of Elizabeth, New Jersey. According to Paul R. May, president of the company, the firm will manufacture waxed paper and other paper products. Due to delays caused by the marine strike the plant did not get under way the first of the year according to original plans, but with a start of a limited production in February, it is expected to be in full operation by the end of March.

The plant is located adjacent to the California Fruit Wrapping Mills on the edge of Pomona. It will employ fifteen people when in full operation. The waxing machine in use is a development of the Marcallus Manufacturing Company. Another special machine which will be installed very soon is a stamping unit which stamps metallic cutting edges on the boxes in which the rolls of waxed paper are finally placed for distribution. This stamping machine is also a patented development of Marcallus. California Fruit Wrapping Mills supplies the paper for the company.

Superintendent of the plant is Paul Grace of Elizabeth, New Jersey. The new plant effects a considerable saving in distribution inasmuch as formerly paper was sent from the California Fruit wrapping Mills to the Marcallus plant in New Jersey and then distributed from that point.

### Schmidt Lithograph To Build Six Story Plant

Carl R. Schmidt, general manager of the Schmidt Lithograph Co., San Francisco, reports their paper coating department is working two shifts to keep up with the company's lithographing department for coated paper. The Schmidt paper coating division is the only unit of its kind on the Pacific Coast and has been in operation about ten years, buying base stock from Everett Pulp & Paper Co. and Oxford Paper Co. and coating it mainly for their lithographing plants in San Francisco and Honolulu. L. J. Morrow is superintendent of the department. A few independent customers are served but most of the product goes into the Schmidt lithograph department.

Mr. Schmidt announced plans were being drawn for a new six-story building to be erected on the firm's property, adjoining its present large San Francisco holdings and adjacent to the junction of the Fremont Street ramp with the main San Francisco-Oakland Bay Bridge. This location is on Sterling Street and \$180,000 will be spent on the improvement. The Schmidt paper box, printing and finishing departments will be in the new building.

The new building will give the Schmidt company four large structures in its group. There is the six-story "tower building"; the four-story main building, which includes the offices and the adjoining four-story "new building" on Second and Bryant Streets, which won't

be the "new" building when the newer building is finished. This structure will have 10,000 square feet on each of its six floors.

Schmidt Lithograph spent \$250,000 for new equipment in its various departments in 1936 and plans a similar expenditure for 1937.

### Sandwell Expecting Word

P. Sandwell, pulp and paper engineer of Vancouver, who has been actively associated with several Pacific Coast pulp plants, is expecting momentarily to hear from Australia regarding plans of the Derwent Valley Paper Company. Mr. Sandwell has been acting as consulting engineer for this project. He has been awaiting word authorizing a start on the construction program.

### Delegates Named for Chicago Labor Meeting

On March 16th the International Brotherhood of Pulp, Sulphite and Paper Mill Workers held a meeting in Chicago, one of the purposes being, it was reported in the press, to determine whether the Brotherhood will join the Committee of Industrial Organization or whether it will remain in the American Federation of Labor.

Three delegates went to Chicago from Port Angeles, to represent the Washington Pulp and Paper Division of the Crown Zellerbach Corporation, the Olympic Forest Products Company and the Fibreboard Products Company. They are: J. Killen, W. C. Adams and C. D. Earl.

Wilbur C. Smith was selected as delegate from the Port Townsend local.



THE NEW POMONA PAPER PRODUCTS PLANT

The new plant of the Pomona Paper Products Company adjacent to the California Fruit Wrapping Mills at Pomona, California >>> A part of this new building is employed as a warehouse by the paper mill >>> Photograph reproduced through the courtesy of the Pomona Progress-Bulletin.

## Shiels Suggests Container Industry for Alaska

In a talk before the Juneau, Alaska, Chamber of Commerce, February 25th, Archie Shiels, president of the Pacific American Fisheries, Inc., of Bellingham, Washington, projected the idea of a fiber container plant in Alaska.

His talk was quoted in The Daily Alaska Empire of Juneau as follows:

"A million dollars a year is now spent for paper cartons in which the Alaska canned salmon pack is encased," Mr. Shiels said. "It seems to me that this Chamber of Commerce and Alaska business should endeavor to interest capital in putting up pulp mills and make the paper and cartons to meet this demand. I assure you this is no 'white chip' game.

However, with proper co-operation from the government, and giving capital a chance, despite the several millions it would take to develop the mills, it could be done, and large year around payrolls would develop, and these same mills could make newsprint."

Mr. Shiels, whose company is one of the largest packers of canned salmon, pointed out the success attendant upon the establishment in Ketchikan several years ago of two fish trap wire mills. The general theme of Mr. Shiels' talk was the need to develop industries in Alaska to provide year around employment.

## Aberdeen Water Line Completed Early in March

The new pipeline, connecting the City of Aberdeen's industrial water supply from the Wynooche River to the mill of the Grays Harbor Pulp & Paper Company in the City of Hoquiam, was completed shortly before the middle of March and tests were under way.

A submarine crossing of the Wishkah River has also been completed and the main line through the Twin Cities is ready for delivery of 30 or more million gallons of water per day.

The recently requested by-pass, which the Grays Harbor Pulp and Paper Company offered to finance by paying an additional charge, is under construction. It will connect the new line at the outlet of Lake Aberdeen directly with the tunnel from the Wynooche River, which discharges into the upper end of the lake. If desired the company can then take water directly from the river tunnel and avoid seasonal complications which might arise if the water were allowed to remain in the lake before being used.

## Pacific Coast Paper Mills Re-Elect Officers and Directors

At the annual meeting of the Pacific Coast Paper Mills, Bellingham, Washington, held on March 3rd, all directors and officers were re-elected.

The directors are: J. J. Herb, Paul J. Herb, William McCush, and George H. Bacon of Bellingham; E. M. Herb and H. M. Lord, New Westminster, B. C., and John D. Watson of Appleton, Wisconsin.

J. J. Herb was re-elected president; Paul J. Herb, vice-president and general sales manager; William McCush, treasurer, and V. A. Hughes, secretary.

Stockholders were advised that the company's mill had run at capacity during 1936 and is busy at the present time.

## Bellingham Water Survey Not Yet Completed

The report of the engineers surveying the Bellingham industrial water situation will not be completed until July. In the meantime the present temporary rate of \$800 per month which the Puget Sound Pulp & Timber Company is paying for water, is to be continued. The Bellingham board of water commissioners so recommended to the city council, commenting that they believed a new agreement would be consummated with the pulp company before July for a much larger quantity of water.

On March 3rd the Bellingham Herald reported that city officials were negotiating with spokesmen for industrial interests "looking with favor on Bellingham as a site for developments that run into millions of dollars."

A preliminary report is shortly to be submitted by the engineers studying the water situation which will be used by the city as a base for negotiating with these industrialists.

The City of Bellingham uses about 20,000,000 gallons of water per day, the Puget Sound Pulp & Timber company uses at present about 3,000,000 gallons daily and has asked for rates on 10,000,000 gallons per day. The negotiations mentioned by the Herald involved the use of an additional 50,000,000 gallons per day. The water commissioners desire a surplus of 20,000,000 gallons, which would bring potential future requirements to a total of 100,000,000 gallons per day.

The idea of diverting a portion of the flow of the South fork of the Nooksack River into Lake Whatcom near Bellingham and using that lake as a storage reservoir is being generally talked in Bellingham and the investigating engineers have been closely studying this idea.

It is rumored that some residents at Lake Whatcom plan to circulate petitions opposing the Bellingham industrial water system if it definitely plans to utilize the lake. Water would be raised two feet and each waterfront property owner would lose about ten feet of ground.

Mayor W. P. Brown of Bellingham was quoted as saying, "We must have a surplus for any other industry that would seek to locate here and water to take care of ordinary expansion of the city. We are constantly asked for water line extensions outside the city limits, for instance, and if we make such extensions in the future, we must have a surplus of water."

## B. C. Mills Increase Wages

Powell River Company and Pacific Mills, Ltd., British Columbia's two big newsprint organizations, announced an increase in wages for all employees in February. The amount of the increase represents about five per cent.

The increase for Powell River employees was announced by D. A. Evans, resident manager at the mill, on February 18, fulfilling the assurance made to the employees by Executive Vice-President Harold S. Foley in December, that as soon as possible a further wage restoration would be made.

John H. Young, manager of Pacific Mills, said a similar wage increase had been authorized for his company.

## Camas to Add Much New Equipment

The Camas, Washington, pulp and paper mill of the Crown Willamette Paper Company will shortly begin a program of expansion and improvement, which will include the installation of another sulphite digester, and extension of the bleach plant, the enlargement of the screening equipment and of the water filter plant. Other work will be done in addition to the above, the work lasting through the summer months.

## B. C. NEWS PRINT PRODUCTION IN 1936

British Columbia news print mills produced 270,000 tons of news print in 1936, an all time record.

## Thomson Visits Powell River

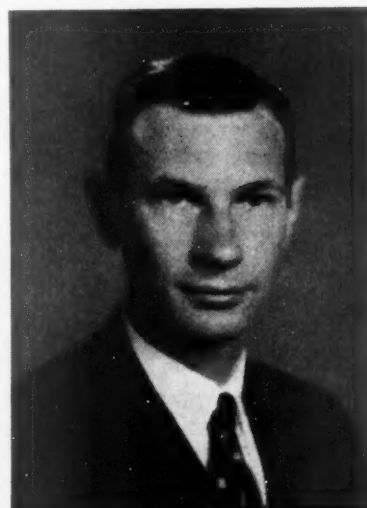
J. A. Thomson, executive director of Dodwell & Company, in the Far East, was a recent visitor to Powell River Company mills. The Dodwell firm represents Powell River in Japan.

## Western Paper Products Starts Manufacturing

Five fourteen Washington Street is the address in San Francisco of the Western Paper Products Co., organized recently by Walter Busse to manufacture various kinds of special paper bags. Mr. Busse was for about twenty years with Blake, Moffitt & Towne, Pacific Coast paper jobbers, until the first of this year.

In his new plant, Mr. Busse already has started manufacturing mattress bags, furniture bags and other specialties from Pacific northwest paper. He expects to install sewing machines late this month and on April 1 will launch into the manufacture of crepe barrel liners.

"Much of this specialty bag business has been going east," "Mr. Busse says," and I think we can keep a lot of it right here on the coast. We can sit down with a customer and help him solve his problem and give him exactly the kind of paper bag he wants."



WALTER BUSSE, President, Western Paper Products Co., San Francisco.



## Camas Paper School Graduates 109

The fourth and most successful year of the Crown Willamette Paper School held at the Camas, Washington, mill, came to a fitting close on the evening of March 1st with a banquet at the Crown Willamette Inn at which the 109 successful students were guests of the company.

Since its inception over four years ago the Paper School has grown in enrollment and in prestige until it is now recognized as one of the outstanding institutions in the country for the teaching of practical knowledge of pulp and paper making to mill employees.

Each year the interest in the school has increased under the guidance of A. G. Natwick, dean of the Paper School and W. R. Barber, principal, ably assisted by other mill officials and department heads.

Approximately 200 employees enrolled last fall for the four months intensive course. Of this number 109 passed their examinations for promotion or graduation. The complete course requires four years and as this was the fourth year of the school's existence the first class was graduated on March 1st.

Thirteen students successfully finished the fourth year course, and of these the two honor students, H. E. Burrell and O. B. Hansen, were each awarded a one week trip to visit the Crown Zellerbach and affiliated pulp and paper mills in the Northwest with all expenses paid and their incomes maintained.

Of the third year group 18 students received certificates of promotion from J. E. Hanny, mill manager of the Camas mill of the Crown Willamette Paper Company. A larger number, 25, passed the second year examinations and 53 received certificates for having satisfactorily completed the first year course.

### Other Honor Awards

A year's subscription to PACIFIC PULP & PAPER INDUSTRY was awarded by this journal to four honor students; Ray Wadsworth, honor student of the first year class; Tony Pleiss, high student and to Cliff Odoms, who received honorable mention in the second year class; and to Harold Nevin, who received honorable mention in the third year class.

Robert Heatherington, who was high

student in the third year class was awarded a set of three books on the manufacture of pulp and paper by the Crown Willamette Paper Company.

One of the unique features of the Paper School is its attraction for young and old. The youngest student was 18 and the oldest 48. An interesting table of statistics about the Paper School students is to be found at the end of this article.

### Major Peck's Address

Major C. R. Peck of Portland, prominent Pacific Northwest attorney, gave the main address. Major Peck spoke on I. Q. versus P. Q., the P. Q. being the Personality Quotient, or as he defined it the power of an individual to interest others in himself or to influence others.

The P. Q. is most essential to success, said Major Peck, the I. Q., or intelligence quotient is not in itself a guarantee of success.

Major Peck told the Paper School students and graduates that while P. Q. was inherent in some individuals it could be acquired by those to whom it did not come naturally. The method of acquiring it he prescribed was daily contact with others through participation in activities of various types. The personality quotient can be developed by outside interests and it can be developed at any age.

The personality quotient and the intelligence quotient together in one individual make the superlative man, but Major Peck told his interested audience, that if he could have but one he would take



**FIRST FOURTH YEAR GRADUATING CLASS OF THE CAMAS PAPER SCHOOL WITH MILL AND SCHOOL OFFICIALS**

Graduates and students of the Camas Paper School were guests of the company at a graduation dinner held at the Crown Willamette Inn, Camas, Washington, the evening of March 1st >>> The school completed its fourth successful year at the end of February >>> Graduates of the first fourth year class are shown in this picture together with school and mill officials >>> Standing, left to right, V. L. Tipka, O. B. Hanson, M. W. Phelps, Vice-Principal; E. R. Craig, H. Burrell, W. H. Ochs, George Bailey, J. A. Birkemo, Rod Knuth, H. P. Willis, E. A. Price, C. J. Beaver and F. A. Olmstead, Vice-Principal of the Paper School >>> Seated, left to right, J. E. Hanny, mill manager; G. W. Charters, Assistant Mill Manager, and recipient of an Honorary Degree; A. G. Natwick, Assistant Mill Manager and Dean of the Camas Paper School; W. R. Barber, Technical Supervisor and Principal of the Paper School; and Frank F. Sullivan, Assistant to the Management, who received an Honorary Degree.



the personality quotient for it was more certain to lead to success in any endeavor of life. The P. Q. and the I. Q. should be coupled with a goal or an ideal to insure progress and happiness in life.

A. G. Natwick, assistant mill manager and dean of the Camas Paper School, who served as toastmaster, next introduced George (Smiley) Williams, who has been with Crown Willamette for 40 years, 37 years of which he has spent at Camas.

In a talk full of wit, which kept the group in laughter, Mr. Williams reminisced of the early days at Camas when the steamer Ione, recently wrecked on a rock in the Willamette River, was the only means of getting in and out of Camas. It left the Camas dock every morning at 7:30 and those who couldn't arise early enough couldn't get out of town for another day.

He commented on what a mighty oak the Technical Control Department had become and it all was started because years ago someone bought a Mullen tester.

Mr. Natwick introduced W. R. Barber, technical supervisor and principal of the Paper School. Mr. Barber said that those who had prepared and delivered the lectures to the several classes were the backbone of the Paper School. A real effort had been put forth, he said, by the superintendents, the foremen, the subforemen and others of the large Camas mill organization. He expressed appreciation to these men for their hard work; to Fred Olmsted, assistant technical supervisor and vice-principal of the school in charge of the first year course; to Maurice Phelps, vice-principal in charge of the fourth year work; to the men outside the Crown Willamette organization who had contributed their time and effort in delivering lectures; and to the students for their earnest application during the four months course. Mr. Barber said a moving picture outfit had been obtained by the school and next winter a system of visual education would be instituted.

George W. Charters, assistant mill manager, was the next speaker introduced by Mr. Natwick. He urged the students to accept responsibility for the work assigned to them and to go beyond what was required for along that path lay success. Good work, said Mr. Charters, always stands out. He said he believed every one should have fun out of making paper, learn to enjoy their work. Developing ideas from the daily job is one way of enjoying one's work. Some of these ideas will be successful.

The Paper School, Mr. Charters stated, gives the students a broad view of the entire mill, a true perspective of the value of their own work in relationship to that of others. He congratulated the fourth year class for sticking to their hard course two evenings a week.

In closing Mr. Charters thanked the students and expressed his own pleasure in working with them.

J. E. Hanny, mill manager, presented the diplomas to the fourth year graduating class and certificates of promotion to those who had passed the examinations in the other three classes. Mr. Natwick read the names and each student came to the speaker's table to receive his award.

Mr. Hanny, in behalf of the Crown Willamette Paper Company thanked all for their interest in the school and said that if they kept on giving a little more than was asked of them they would tend to develop the PQ to which Major Peck referred and they would progress in life.

In addition to the regular awards the Camas Paper School gave an honorary degree, Doctor of Philosophy in Mill Management, to George W. Charters, and an honorary degree, Doctor of Philosophy in Mill Engineering, to Frank F. Sullivan.

#### Entertainment Pleases

During the banquet the guests were entertained with piano selections by G. H. Galloway and H. Prelinger. Mr. Prelinger presented some original music.

The Paper School Quartet, J. M. Tedford, William Goodwin, Fred Olmsted and H. D. Kennedy sang a number of songs and made a hit with one consisting of fourteen humorous verses written by Mr. Olmsted about the mill executives.

At the speaker's table were the following men: A. G. Natwick, W. Norman Kelley, manager, Longview mill, Pulp Division, Weyerhaeuser Timber Company; George "Smiley" Williams, Carl Gaiser, purchasing agent for the Crown Willamette Paper Company, Portland; H. A. Des Marais, General Dyestuff Corporation, Portland; John E. Brown, associate editor of PACIFIC PULP & PAPER INDUSTRY, Portland; Frank F. Sullivan, James Julian, H. E. Ostensen, Major C. R. Peck, John E. Hanny, W. R. Barber, R. S. Hatch, research director, Weyerhaeuser Timber Company, Longview; George W. Charters, Harlan Scott, editor of PACIFIC PULP & PAPER INDUSTRY, Seattle; Dr. E. C. Lathrop, Otto Michaelis, Maurice Phelps and Fred Olmsted.

#### The First Year Class

Those who passed the first year class examinations:

Carl Arvidson, Albert Belz, Francis V. Berger, George Bourcier, H. H. Brown, Miles A. Cady, G. Carpenter, A. V. Chipperfield, Dave Christopher, Dave Clark, Elmer W. Clark, Edith Cowan, R. W. Cullum, William M. Daly, Bill Damon, Leo Essen, W. L. Failing, John A. Fisher, Chester Funk, Hugh Gittings, J. F. Grace, L. A. Groth.

Jim L. Hays, Keith Hill, F. T. Holdsworth, J. A. Hughes, Virgil Hughes, G. Hylton, Al Isaacs, Alex Kershner, J. B. Knight, Jr., Mark Lawrence, R. F. Leach,

A. Lewis, Edward Lownik, Aaron Martin, A. Mason, Raymond F. Miller, Roy R. Miller, Conrad Morasch, Peter Pell, William G. Powell, Walter Rains, Walter Rich, Kenneth Rodd, George Shaw, Glen W. Smith, L. M. Swikert, J. M. Turlington, Ray Wadsworth, Ed Weeks, C. B. Wise, A. Hawley.

#### The Second Year Class

The following passed the second year examinations:

Chester Beals, Thomas F. Buford, Claud Christiansen, J. R. Christopher, Carlton Duncan, Marion A. Edwards, Howard J. Ellis, W. L. Failing, Chester Funk, Wilbur E. Harms.

A. D. Hawley, Al Isaacs, William P. Luthy, Roy R. Miller, Clifford Odums, O. V. Owens, A. A. Pleiss, J. C. Pollard, Robert Simpson, L. N. Smith, Leona Van Arnam, W. G. Webb, S. E. Wightman, Laurence Wright, W. E. Priebe.

#### The Third Year Class

Following are those who successfully completed the third year course:

L. Bastian, Porter T. Dickie, M. M. Greer, R. C. Hayes, A. Hawley, R. Heatherington, Irwin P. Jessen, A. K. Jones, V. C. Lau, Leland F. Maybach, Harold Nevin, Clayton R. Rudesill, Clarence Shaw, J. L. Smith, E. H. Scott, L. E. Tidland, Earl Tucker, S. N. Yeager.

#### The Graduating Class

Following are the 13 who graduated from the fourth and final year of the Crown Willamette Paper School at Camas, Washington:

C. J. Beaver, J. A. Birkemo, H. E. Burrell, George Bailey, O. B. Hanson, C. M. Howell, Rod Knuth, W. H. Ochs, E. A. Price, Herman Rickar, K. H. Siecke, V. L. Tipka, H. P. Willis.

#### Log Exports Increased in 1936

Log exports from Pacific Northwest ports showed another increase in 1936, in spite of unfavorable shipping conditions created by the maritime strike, according to Portland and Seattle merchants exchanges compilations recently summarized by Dr. J. Elton Lodewick of the Pacific Northwest forest experiment station, Portland.

Douglas fir logs with 54 million board feet (Scribner scale) made up approximately half the total softwood log shipments of 109 million feet. Approximately 35 million feet of Douglas fir went to Japan; about 6 million feet to China; and 2 million to Australia and New Zealand. The remaining 8 million feet were high grade veneer logs shipped to Europe, South Africa and the Philippine Islands.

Hemlock logs ranked second in volume with nearly 33 million board feet, of which Japan took 29 million and China the remainder. Third in importance was western red cedar, with 7 million board feet all destined for Japan. Port Orford cedar log exports totaled 6 million feet, of which Japan took 98 per cent. Other softwoods shipped were Sitka spruce with 3 million, and western white pine with nearly 2 million feet.

Of hardwood species shipped, cottonwood comprised 6 million feet, mainly going to China and Japan. Other hardwoods such as ash, maple, madrone and walnut for furniture and veneer, totaled 150 thousand feet.

#### STATISTICS OF THE CAMAS PAPER SCHOOL

	Year				Entire School
	1st	2nd	3rd	4th	
Age of Oldest Student Enrolled.....	43	48	44	45	48
Age of Youngest Student Enrolled.....	18	20	24	24	18
Average Age of Enrolled Students.....	28	30	31	35	29.47
Number of Students Enrolled.....	111	45	26	18	200
Age of Oldest Graduate.....	46	43	44	42	46
Age of Youngest Graduate.....	18	20	24	24	18
Average Age of Graduates.....	29	31	33	35	30.45
Number of Students Graduating.....	53	25	18	13	109

# TAPPI Hears Talk On Alloy Application

On Tuesday evening, March 2nd, the Pacific Section of TAPPI held a dinner meeting in the Hotel Olympian, Olympia, Washington. Approximately 70 men attended. Earl G. Thompson, secretary-treasurer of the Pacific Section arranged the dinner meeting and presided.

An interesting sound moving picture of the construction of the San Francisco-Oakland Bridge was shown by the Columbia Steel Corporation, subsidiary of the United States Steel Corporation. This picture, which was taken during the various stages of construction presented a clear and instructive idea of the tremendous undertaking. Ralph Winship of the Columbia Steel Seattle office exhibited the picture.

"Nickel Alloy Steels and Cast Irons in the Pulp and Paper Industry" was the title of the paper presented by A. G. Zima, Western representative of the Development and Research Division of the International Nickel Company. Mr. Zima, whose headquarters are in Los Angeles, showed a number of tables and photographs in slide form.

His presentation of the subject provoked an interested discussion and he answered a number of questions. His paper contained much detail and hence its publication in full in this number of PACIFIC PULP & PAPER INDUSTRY will be of special interest to those who heard Mr. Zima speak and who desire to study the tables he offered.

Those who were not at the meeting will find the paper of value when decisions are to be made as to the type of steel or iron required for various work in pulp and paper mills.

The following attended the Olympia dinner meeting of the Pacific Section of TAPPI, March 2, 1937:

C. M. Anderson, Eagle Metals Co., Seattle; William Anderson, Eagle Metals Co., Seattle; Irving L. Angove, Rainier Pulp & Paper Co., Shelton; B. A. Bannan, Western Gear Works, Seattle; J. Robert Bell, Rainier Pulp & Paper Co., Shelton; Chas. H. Belvin, Chromium Corp. of America, Portland.

Denis Berdine, Rainier Pulp & Paper Co., Shelton; John W. Bennett, Rainier Pulp & Paper Co., Shelton; W. E. Breitenbach, Grays Harbor Pulp & Paper Co., Hoquiam; A. M.

Cadigan, St. Regis Kraft Co., Tacoma; N. W. Coster, Soundview Pulp Co., Everett; Henry V. Charnell, Jr., Olympic Forest Products, Port Angeles, Wash.

R. E. Chase, R. E. Chase & Co., Tacoma; Sidney M. Collier, Soundview Pulp Co., Everett; H. A. Des Marais, General Dyestuff Corp., Portland; Fred Doherty, 601 Bellevue, Shelton; R. E. Drane, St. Helens Pulp & Paper Co., St. Helens, Ore.; Geo. E. Durkee, Shaffer Pulp Co., Tacoma.

Conrad Dyar, Rainier Pulp & Paper Co., Shelton; Girard C. Eck, Rainier Pulp & Paper Co., Shelton; Harold T. Fretz, Olympic Forest Products, Port Angeles; N. O. Galteland, St. Regis Kraft Co., Tacoma; William R. Gibson, Shibley Co., Seattle; Harry W. Glenn, Crown Willamette Paper Co., Camas.

A. Gustin, Grays Harbor Pulp & Paper Co., Hoquiam; S. E. Hazelquist, Weyerhaeuser Timber Co., Longview; Judson H. Holloway, Rainier Pulp & Paper Co., Shelton; Geo. W. Houk, Hooker Electrochemical Co., Tacoma; E. R. Johnson, 1023 Grand Ave., Everett; Lester M. Johnson, Weyerhaeuser Timber Co., Longview.

M. E. Kimsey, Rainier Pulp & Paper Co., Shelton; Ed. Magill, Grays Harbor Pulp & Paper Co., Hoquiam; John C. Mannion, Grays Harbor Pulp & Paper Co., Hoquiam; W. J. McJanet, Eagle Brass Foundry Co., Seattle; D. C. Morris, James Brinkley Co., Seattle; W. A. Morrow, Eagle Metals Co., Seattle.

Fred Nicholson, Stetson Ross Machine Co., Seattle; Adolf Orup, Soundview Pulp Co., Everett; F. M. Pape, 710 Belmont Place, Seattle; J. W. Peckham, Bristol Co., Seattle; H. L. Peterson, Weyerhaeuser Timber Co., Longview; Carl A. Ramstad, Soundview Pulp Co., Everett.

H. H. Richmond, Electric Steel Foundry Co., Portland; Steve Rupert, Olympic Forest Products Co., Port Angeles; J. M. Shedd, Everett Pulp & Paper Co., Everett; James T. Shesby, Grays Harbor Pulp & Paper Co., Hoquiam; L. R. Sheldahl, Eagle Metals Co., Seattle; Fred Shaneman, Pennsylvania Salt Mfg. Co., Tacoma; Brian Shera, Pennsylvania Salt Mfg. Co., Tacoma.

T. M. Shields, Simonds Saw & Steel Co., Seattle; Geo. C. Shively, Soundview Pulp Co., Everett; Harlan Scott, Pacific Pulp & Paper Industry, Seattle; Winston Scott, Rainier Pulp & Paper Co., Shelton; Lloyd E. Stevenson, Weyerhaeuser Timber Co., Longview; P. E. Sullivan, Ingersoll-Rand Co., Seattle.

Robert S. Tabke, Rainier Pulp & Paper Co., Shelton; R. I. Thieme, Soundview Pulp Co., Everett; Earl G. Thompson, Great Western Electro-Chemical Co., Seattle; H. A. Vernet, Staley Mfg. Co., San Francisco; R. O. Vognild, Hooker Electrochemical Co., Tacoma; H. F. Warren, R. E. Chase & Co., Tacoma.

N. T. Widmann, Olympic Forest Products Co., Port Angeles; Elwood Wilson, Jr., Rainier Pulp & Paper Co., Shelton; Ralph Winship, Columbia Steel Co., Seattle; L. R. Wood, Grays Harbor Pulp & Paper Co., Hoquiam; E. F. Woodruff, Rainier Pulp & Paper Co., Shelton; Albert G. Zima, International Nickel Co., Inc., Los Angeles; Peter N. Zopolis, Rainier Pulp & Paper Co., Shelton.

## Bellingham Lions After a Container Plant

At a Chamber of Commerce luncheon in Bellingham March 3rd, Claude W. Caine, of the Chicago headquarters staff of Lions International spoke on the subject, "Bellingham Burns Ten One Hundred Dollar Bills Daily." Mr. Caine has been sent to the Coast on a year's visit preparatory to the holding of the Lions International Convention in Seattle next summer.

His reference to burning applied to the sawmill burners daily consuming waste wood. Instead he recommended that Bellingham go after a fiber container plant. In his talk Mr. Caine offered to accompany a committee of Bellingham men, without expense to Bellingham, next summer on a trip of personal contacts within a radius of 500 miles from Chicago for the purpose of persuading some container manufacturer to locate in Bellingham.

The Bellingham Herald reported Mr. Caine's talk in part as follows:

"Mr. Caine stressed the fact that the type of pulp used in the manufacture of fiberboard can be made from any part of the tree except the leaves, and he pointed out that the owners of stump land in the Northwest, if this plan goes through, will be able to clear their land and sell the forest refuse at a profit in excess of the cost of removing the stumps.

"He said he had been informed recently by one of the largest shippers of canned salmon on the coast that the paper cartons used for packaging had been imported from Terre Haute, Indiana. In view of the relatively high freight costs, manufacturers of fibreboard cartons in Bellingham, he continued, should be able to undersell their Eastern competitors and obtain the bulk of the orders for cartons for shipping salmon and fruit. In this connection he said 17,000,000 cases of salmon and 9,000,000 boxes of apples are shipped from the state yearly.

## Raw Material Here

"Mr. Caine declared that in his opinion Bellingham is 'burning' more than ten \$100 bills daily in failing to utilize the waste forest products of the community. One-fifth of the commercial timber of the United States is in the State of Washington, he said, consequently this state has a greater opportunity for developing the pulp business than any other in the Union.

"Lions International is prepared to join the people of Washington in overcoming the adverse publicity the state has received in the East as a result of strikes and racketeering, Mr. Caine explained. From 7,000 to 9,000 persons usually attend the international conventions, and the presence of that number in Washington next year, he added, should be advantageous in 'selling the state in the East.'"

## FIRST AID CLASS IN BELLINGHAM

The members of local 194 of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers comprising employees of the Puget Sound Pulp & Timber Company at Bellingham, Washington, are studying first aid work in a standard class. Glenn C. Parmelee is the instructor.

## THE PORT ANGELES TAPPI DINNER

On Tuesday evening, April 6th, the Pacific Section of TAPPI will hold a dinner meeting in Port Angeles, Washington.

The place is the Port Angeles Country Club. The time is 6:30 p. m.

The subject is "Wood Preparation." The speakers will be Fred Nicholson of the Stetson-Ross Machine Company of Seattle and E. I. Flateboe, general manager of the Sumner Iron Works of Everett. Discussion will follow the talks.

George Douglas, chief chemist for the Washington Pulp & Paper Corporation of Port Angeles, is in charge of arrangements for the meeting. Reservations should be made either with Mr. Douglas or with Earl G. Thompson, Secretary-Treasurer of TAPPI, 1201 Textile Tower, Seattle.

## Rainier Building Log Break-Down and Chipping Plant

Shortly after the middle of February work was begun by the Rainier Pulp & Paper Company of Shelton on a new log break-down and chipping plant which will supply practically the entire requirements for chips.

The new break-down and chipping plant was begun last spring but work was halted after some piling had been driven and bulkheading done. Shortly after the first of the year it was decided to go ahead immediately with the new plant. Fred W. Horskotte, sawmill engineer of Portland, has cooperated in the design of with the Central Engineering Department at Port Angeles.

The new building, 180 by 200 feet, will be built on the Reed Mill property adjoining the present Reed mill on the bay side. During the construction period the Reed mill will continue to operate

two shifts breaking down logs for the Rainier mill.

When completed the new plant will be independent of the Reed mill in operation and will have its own log haul, log deck, 8-foot band saw and resaws.

An interesting feature of the new plant design is the plan to slab the logs into cants approximately 12x12 inches, 20 feet in length for the heavy 110 and 84-inch chippers, thereby speeding up the operation of the sawmill which will have a capacity of 25,000 board feet per hour or approximately 50 units.

Rainier will become independent of outside sources of chips and cordwood when the break-down plant is completed.

Early in March the remainder of the piling was being driven and the work of building the plant is being rushed to completion.

### Brown Paper Goods Starts Oakland Plant

Jumbo rolls of napkin stock from Pacific northwest paper mill were being trucked into the new Oakland plant and warehouse of the Brown Paper Goods Co. of California early this month to be converted into package and fixture-fold napkins to be sold through the Glass Sales Agency. Napkin converting machinery will be arriving late this month.

Resident manager at the Oakland plant

is Harry T. Burnham, for six years with the H. H. Post Co., Denver paper jobbers for forty years. James Wyman, also formerly with the Post company, is now with the Brown company's Los Angeles office.

Charles E. Digby, secretary of the Brown company, was expected in Oakland, up from Los Angeles, about the middle of March. The Oakland plant is at 90 Seventh Street.

### Bates Convalescing

C. F. Bates, factory manager for Johns-Manville Products Corp., Pittsburg, Calif., recently spent some time in a San Francisco hospital because of a nervous breakdown, but is now back at home in Pittsburg, where he is convalescing.

### Mammen Honored By Governor Martin

Gov. Charles H. Martin of Oregon last month appointed M. L. Mammen, safety director for the Crown Zellerbach Corp. and affiliated companies, as one of five members of the Board of Governors of the Western Safety Conference. Mr. Mammen will represent "industry" and will assist in arranging the third annual convention of the association, which will be held at Portland later this year.

The appointment of Mr. Mammen to the Board of Governors is regarded as a pleasing tribute and a credit to the industry, reflecting as it does the high standard of safety work in the pulp and paper industry during the past several years.

The Western Safety Conference was organized in 1935, with the first meeting in San Francisco. The second gathering was at Salt Lake City. This year's convention was brought to Portland by representatives of the State Industrial Accident Commission and Miss Ruth Murray, executive secretary of the Progressive Business Men's Club of Portland, headed by Worth Caldwell.

The eleven western states, British Columbia and Mexico are represented at the meetings, which last approximately a week. Two days are devoted to highway and traffic accidents, and the remainder of the time to home, public and industrial accidents. Speakers of high standing from various cities throughout the country present the problems in various types of safety work.

At Portland, prominent speakers will discuss the safety problem in logging, sawmilling, pulp and paper manufacturing, cement making and similar western industries. Competitive first aid demonstrations will be held between teams from representatives of the industries from many sections of the West.

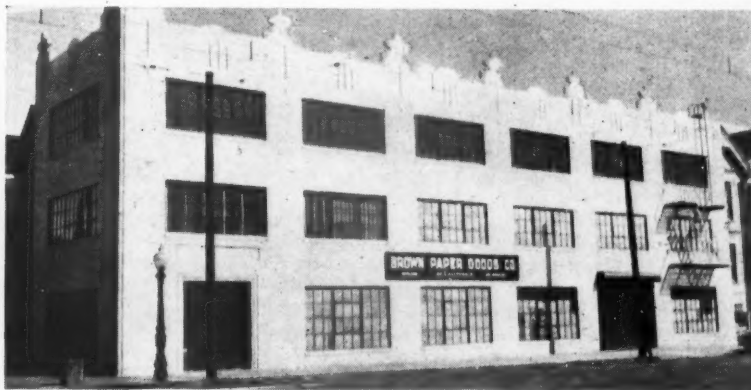
The Board of Governors will be assisted by committees composed of well known leaders of industry and business.

### St. Helens Declares Dividend on Common

A dividend of 20 cents per share on the common stock was paid to stockholders of the St. Helens Pulp & Paper Company of record February 23rd. This represents 2 per cent on the company's January earnings and is on the basis of \$2.40 annually.



**HARRY T. BURNHAM,**  
Resident Manager  
Brown Paper Goods Co.,  
Oakland.



The new Brown Paper Goods Company's plant in Oakland, California.



# Inland Empire Producing Higher Grades

Recently Completed Improvements  
Enable Production of Sulphite and  
Groundwood Specialties

It was a year ago on the 14th of March that the reorganization of the Inland Empire Paper Company of Millwood, Washington, was completed, a Reconstruction Finance Corporation loan of \$500,000 obtained and Lyman M. Smith became general manager.

Mr. Smith immediately instituted a program of mill improvements aimed to turn a part of the plant's production of news print and groundwood papers into higher grades, and, at the same time, to reduce costs through modernization of equipment and methods.

The original program of improvements was recently completed, but it is the plan of the management to continually improve the mill, keeping it up-to-date.

## The New Grades

The Inland Empire Paper Company was organized in 1910 and began operations in 1911 with one small paper machine. Within two years business warranted the installation of a modern 156-inch news print machine. At this time, in 1912, the original machine was rebuilt and the groundwood pulp mill constructed.

In 1916 the sulphite pulp mill was built. At this time the Inland Empire Paper Company was making news print, wrapping papers, book papers, bond papers and sulphite and ground wood specialties.

The news print market was profitable in 1919 so the company decided to discontinue the making of bleached papers. The third machine was installed and the plant concentrated on the production of news print specialties including poster papers.

A construction and improvement program carried out in 1925 included the replacing of much of the original construction with permanent brick buildings, the modernizing of the original paper machine and the speeding up of production throughout the mill.

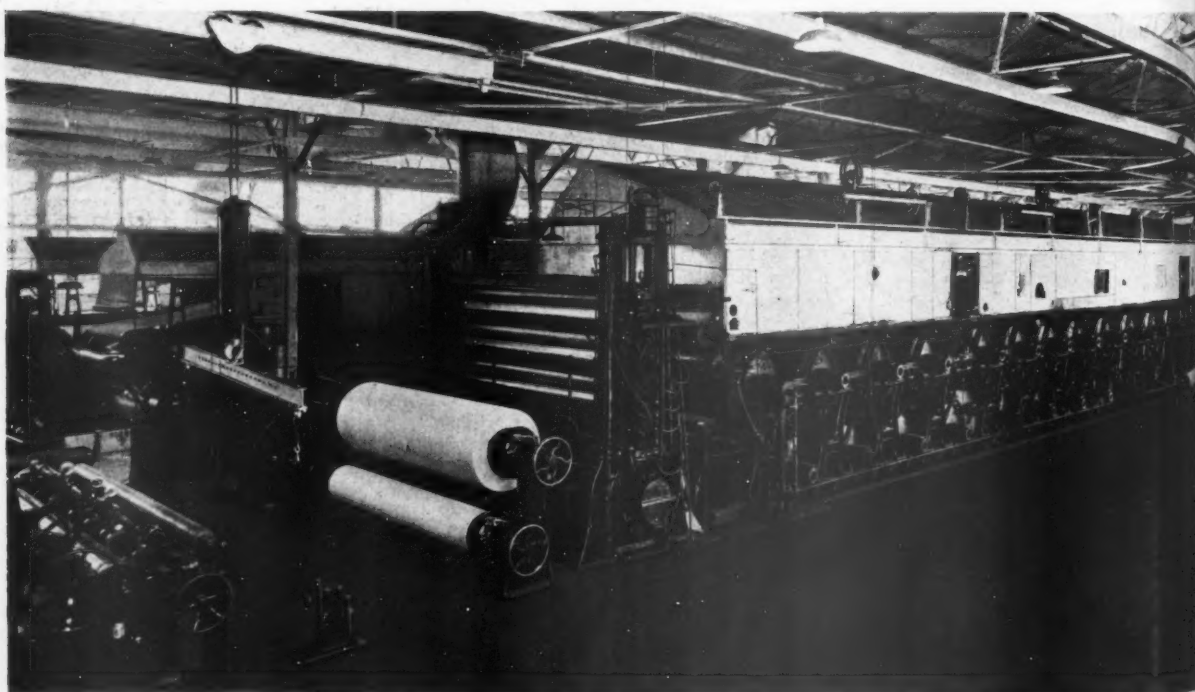
Ground work was laid in 1930 for increasing the mill capacity to 200 tons of news print per day and all of the necessary work was completed but the machinery for this production was not installed. The decrease in the price of news print which accompanied the depression stopped this program and eventually

brought about the reorganization which was completed a year ago.

Prospects for profitable news print manufacture were poor so it was decided to re-enter the sulphite specialties field, which had been abandoned in 1919. The specialties market was growing in the Inter-Mountain territory and on the Pacific Coast, the Inland Empire Paper Company's primary markets.

Under Mr. Smith's direction the changes to specialties have been largely completed and the mill is now producing in addition to news print and groundwood specialties, the following papers:

- No. 4 Bond in white and colors.
- Mimeo Bonds.
- No. 4 Ledgers.
- Eggshell Book.
- English Finish Book.
- M. F. Book.
- Fibretint Envelope.
- Fibretint Wrapping.
- Empire Butchers Bleached.
- Butchers Sulphite.
- Fibretint Butchers.
- Butchers Manila.
- Inland Kraft Wrapping.



INLAND EMPIRE'S MACHINE ROOM

The machine room at the Inland Empire Paper Company in Millwood, Washington, contains three machines >>> No. 2 machine in the foreground is 154 inches wide >>> No. 3 and 4 machines in the background are each 84 inches in width.



### Uninterrupted Production

For nearly 25 years the Inland Empire Paper Company has operated without interruption providing employment for a large number of men, although during the past few years of poor business production was necessarily curtailed. In recent years the employment has averaged about 250 men.

### Raw Materials

The Inland Empire Paper Company draws its wood supply from Northeastern Washington and Northern Idaho, using hemlock, white fir and spruce totalling about 25,000,000 board feet annually.

Inland Empire is favored with an excellent water supply of exceptional purity. A vast lake underlies the Spokane Valley in which the mill is located and water is obtained simply by pumping whatever quantity is needed. The lake apparently has no limit to its capacity to supply water. The City of Spokane obtains its domestic supply from this same source. Water for the pulp and paper mill requires no treatment.

Lime rock is obtained from sources in Northeastern Washington which also supply a number of sulphite mills on Puget Sound.

### The Completed Improvement Program

Summarized briefly the Inland Empire improvement program recently completed included the following equipment and changes in the mill.

Latest type Bird 3A paper machine screens were installed on No. 2 and No. 3 machines. Each of the three paper machines was equipped with an Eimco vacuum saveall, the No. 2 machine with an 8 by 16-foot saveall and No. 3 and No. 4 with 8 by 10-foot savealls.

A Vortex beater built by the Valley Iron Works was installed to provide additional beating capacity and also to permit variations in beating not readily permitted by the Hollander type already in use in the mill.

Screening capacity was increased by installing 7 fourteen plate Smythe Multivac Flat Screens, built by Ray Smythe of Portland, Oregon. These screens have all bronze vats with advanced type of plate fasteners which eliminates the use of bolts, screws and similar fastenings. Plates are tightly and positively held in place, thereby insuring cleaner pulp.

The drive of the Smythe Multivac screens is of the simple eccentric type, one eccentric for each diaphragm. Line shafts are adequately supported by the Jones Type self-oiling bearings. Action is positive, evenly distributed and hence free from wear and maintenance. These screens were filled with half .008 and half .007 cut plates.

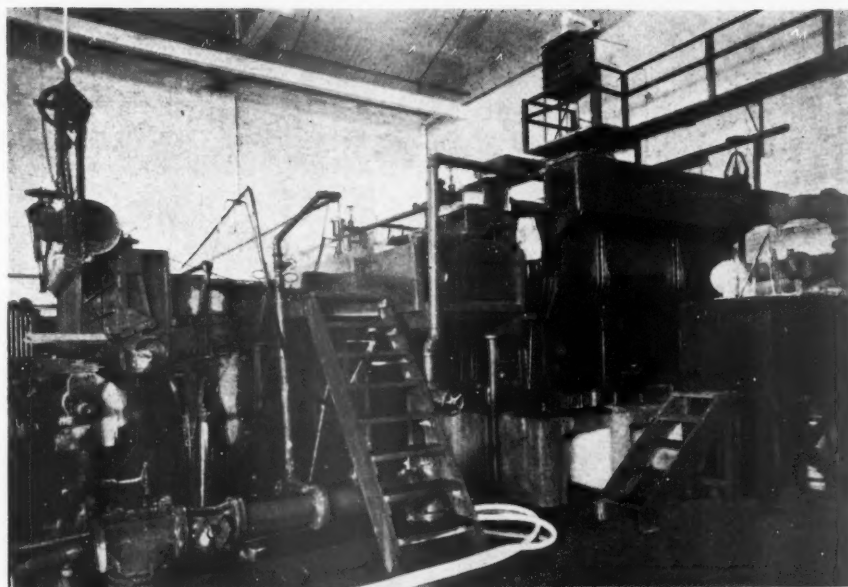
As an additional step in the plan to remove dirt from the pulp three new lines of rifflers were built, each 8 feet wide by 60 feet long.

Rotary knoter screens were taken out and replaced with flat screens already in the mill. These were rebuilt and equipped with .030 cut plates.

Groundwood screening was increased by the addition of two Trimby screens which were formerly used for sulphite screening.

### Copper Lined Machine Pipe

Another step to provide cleaner stock to the machines was the lining of all pipe circuits for Nos. 3 and 4 machines with copper piping. The new saveall piping on all three machines is of wood stave construction with rubber lined fittings.



At the top is the new Bird 3A screen on No. 2 paper machine >>> No. 3 machine was also equipped with a new Bird 3A screen >>> Below is the new Valley Iron Works Vortex Beater in the beater room at Inland Empire.

The large Bellmer already in the mill was modernized and lined with white tile, the lining being done by the Stebbins Engineering & Manufacturing Company, who also relined one of the sulphite digesters.

Either sulphite or waste paper pulps may be bleached in the Bellmer.

A new chlorinator and ammoniator was added to provide control over slime formation.

### Steam and Electricity

One new furnace was installed in the power plant and all were changed from coal to the hogged fuel burning type. The Inland Empire mill does not produce any electric power, only steam for cooking and drying. Electric power for grinding (which is all electric) and for the motors throughout the plant is furnished by the Washington Water Power Company of Spokane.

In connection with the sulphite mill a new, large acid tank of wood stave construction was installed.

The three paper machines at Inland Empire, known as Nos. 2, 3 and 4 were repainted as was the entire machine room.

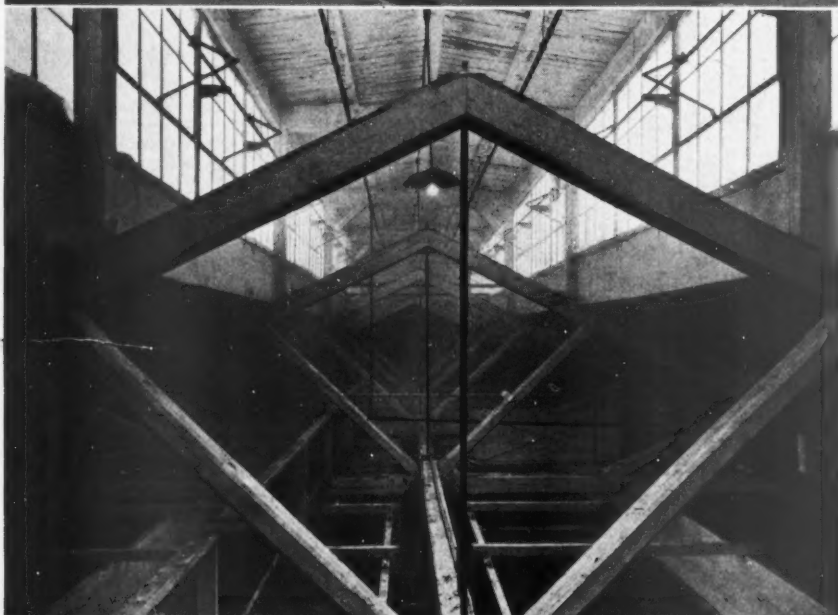
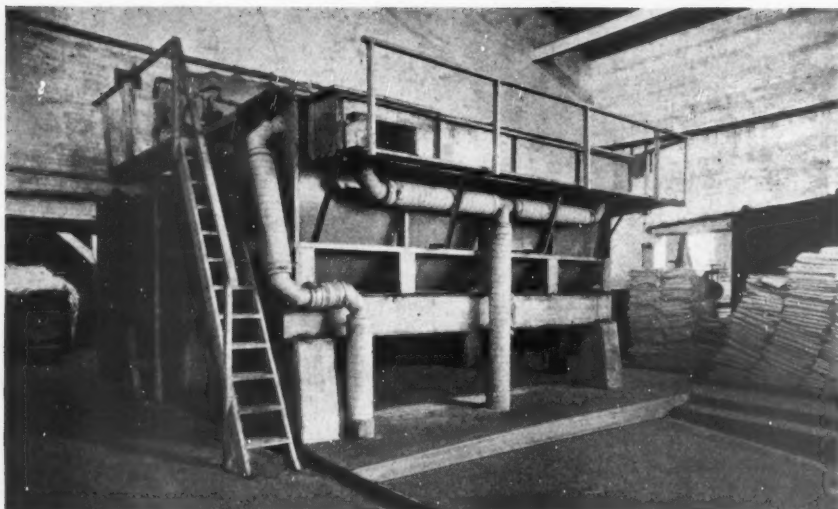
### Plan New Laboratory

During the year the company plans to install a new, larger and well equipped testing and control laboratory.

### Those Who Run Inland Empire

Under the reorganization of the Inland Empire Paper Company which became effective March 14, 1936, A. W. Witherspoon, an attorney of Spokane, became president. W. W. Witherspoon, also an attorney, became secretary.

Lyman M. Smith is general manager. C. A. Buckland is assistant general manager. J. L. Janeczek is paper mill superintendent. Myron W. Black is sulphite



superintendent and technical director. N. L. McGoun is master mechanic.

Mr. Smith has a broad background of experience in pulp and paper manufacture. He is a graduate of the Worcester Polytechnic Institute of Worcester, Massachusetts. Before he came to the Pacific Coast the first time he was assistant general manager of the Brompton Pulp & Paper Company, manufacturers, and owners of the Claremont Paper Company, Claremont, N. H., and the Groveton Paper Company of Groveton, N. H.

He then came to the Pacific Coast for the Crown Willamette Paper Company and was mill manager of the Camas mill for several years, leaving in 1930 to join the Cherry River Paper Company at Richwood, West Virginia, in an executive capacity. From Cherry River Mr. Smith came to Inland Empire a year ago.

Mr. Janecsek, paper mill superintendent, has had much experience in the manufacture of the better grades of four-drainer and cylinder papers both at the mills of the Marathon Paper Mills Company at Rothschild, Wisconsin and at the Cherry River Paper Company in Richwood, West Virginia. He left the latter company to join Mr. Smith at Inland Empire.

#### Win Rate Fight

After years of discouragement in its efforts to obtain a rate differential on news print shipped into the Inter-Mountain and Southwestern territories over Pacific Coast tidewater mills, the Inland Empire Paper Company won its fight in December, 1936, when the Interstate Commerce Commission ordered the interested railroads to put certain differentials into effect. The order became effective February 27, 1937.

The order provides that the Portland rate be not less than four cents a 100 pounds higher than the rate from Millwood to Wyoming, Colorado, New Mexico and Arizona; from Port Angeles, six cents higher to Wyoming and Colorado and four cents to El Paso, Texas, and eastern New Mexico.

The old rates from Portland, Port Angeles and Powell River were used as a basis for the new rates, Millwood rates be lowered to the differentials prescribed, except that the rate from Millwood to Sheridan, Wyoming, was fixed at 57.5 cents per hundred pounds as the basis for rates to Wyoming and Colorado points. The old rate was 63.5 cents per hundred pounds.

The new rates will aid Inland Empire in marketing its news print in its natural sales territory.

At the top is the new 8x16-foot Eimco Vacuum Saveall on No. 3 paper machine at Inland Empire >>> The other two machines were similarly equipped but with 8x10-foot vacuum savealls.

In the center is the new riffler room with three lines of 8x60-foot rifflers—another example of the attention paid to cleanliness of stock.

At the bottom is a row of the 7 fourteen-plate Smythe Multivat Flat Screens, installed to provide cleaner pulp.

## Reforestation Facts Established by Study

The vital reforestation problem for Oregon and Washington received new factual ammunition recently with a report on studies of Douglas fir natural regeneration by Leo A. Isaac of the Pacific northwest forest experiment station.

The report based on forest service records shows that bumper crops of Douglas fir seed occur from 3 to 7 years apart with complete failures or light crops intervening. The average old growth tree in a good year produces approximately a pound of seed (40,000 seeds), which is only about a tenth of the amount ordinarily required to seed an acre. Contrary to a widely accepted theory that Douglas fir seed remains alive in the ground for several years, the study shows that most seed either germinates or decays within a year. Research indicates that within ten years windfall and other causes ordinarily destroy about 75 per cent of single scattered seed trees left after logging and that the best assurance of adequate seed supply is a block of uncut timber. The average distance to which seed trees will reseed adjacent land is approximately a quarter mile, and the necessity for abundant and continuous seed supply is further seen in the fact that loss of the annual seedling crop runs from 66 to 95 per cent. Principal causes of seedling mortality are listed as sun scald, drought, rodents, frost, insects and competition from other growth. Effects of shade, moisture and competing vegetation upon seedlings are weighed by the report.

Main conclusions are that large areas, logged off or burned and beyond reach of seed sources will not reforest naturally for generations; that patches or blocks of timber must be left both for better fire protection and adequate seed supply, and there must be no reburning of logged off land held for production of timber.

The report states that if these points are observed the normal cycle of forest reproduction will follow without interruption; and new forests will follow old in a single step.



**C. A. BUCKLAND,**  
Assistant General  
Manager, Inland  
Empire Paper Co.

## Japanese Imports of Wood Pulp Increased 21% in 1936

Imports of wood pulp into Japan last year, according to preliminary figures, reached a total of 365,700 short tons, an increase of 21 per cent over the imports during 1935 and of 44 per cent over the preceding year. Receipts from the United States dropped off sharply during December due to the Pacific Coast Maritime Strike.

Nevertheless, the United States supplied 47 per cent of the year's total imports as against 40 per cent during the preceding year. (Commercial Attache Frank S. Williams, Tokyo.)

## Pulp Exports Up 18.5% in Tonnage, 22.7% in Value

Exports of wood pulp from the United States in 1936, totaling 203,485 short tons of 2,000 pounds, air dry weight, and valued at \$10,600,176, showed an increase over the preceding year's shipments and constituted the fourth successive year in which pulp exportations from this country have registered a gain. Last year's exports, according to official U. S. Department of Commerce figures, were 31,775 short tons, or 18.5 per cent, larger in volume, and \$1,967,205, or 22.7 per cent, greater in value over the total of 171,710 short tons of a value of \$8,632,971 exported during 1935.

The United States is, of course, a pulp-consuming nation, and its exports of pulp consequently are limited. However, shipments of domestic-produced sulphite pulp, principally from Pacific Coast mills, have been recording a steady rise in recent years. Within a period of four years, pulp exports from the United States have grown five times in total annual tonnage and value.

Sulphite exports last year amounted to 187,571 short tons of a value of \$10,272,777, 92 per cent of all pulp exported, compared with 166,416 short tons of a value of \$8,347,968 the year before. Exports last year were divided 119,528 short tons of bleached sulphite of a value

of \$8,098,962, and 68,043 short tons of unbleached of a value of \$2,173,815.

Soda pulp was exported to the amount of 4,689 short tons of a value of \$267,278 last year, and miscellaneous pulp shipments were 1,225 short tons of a value of \$60,121.

## Belgium Buying More U. S. Wood Pulp

The Belgian pulp and paper industry during the last quarter of 1936 experienced very satisfactory activity. It has been reported that with the exception of some 5 per cent, the whole production of wood pulp for 1937 delivery has already been disposed. Quotations for next year's deliveries show a considerable rise. Consumption of wood pulp for 1937 is estimated at 90,000 tons of chemical wood pulp and 60,000 tons of mechanical wood pulp.

Paper mills are reported to be operating at 100 per cent capacity and the volume of orders for the domestic market is so large that the demands from foreign markets can not be met. Newsprint manufacturers have already booked orders for 1937 delivery and wrapping paper manufacturers, kraft and greaseproof, have sufficient work to last 3 or 4 months. Since June, 1936, prices have increased from 10 to 20 per cent and labor wages are 10 per cent higher.

Imports of wood pulp from the United States during the first 11 months of 1936 increased by 20 per cent as compared with the corresponding period in 1935. (Consul Walter H. Sholes, Brussels)

## Gard Moves Merrick Office

Irving R. Gard, Pacific Northwest representative of the Merrick Scale Manufacturing Company of Passaic, New Jersey, makers of the Weightometer, recently moved his offices to 908 Lowman Building, Seattle. His telephone number is ELiot 7553.



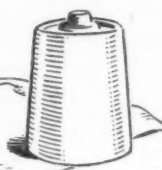
**J. L. JANECEK,**  
Paper Mill  
Superintendent  
Inland Empire Paper Co.



**MYRON W. BLACK**  
Sulphite Superintendent  
and Technical Director  
Inland Empire Paper Co.



# Rayon *and other* CHEMICAL USES OF WOOD PULP



## British Estimate Of World Rayon Production

Preliminary estimates of world production of rayon yarn and staple fiber show the highest level ever recorded, according to the February 5 issues of "The Textile

Weekly" and "Textile Mercury and Argus", both published in Manchester, England. The output of staple fiber almost doubled in 1936 as compared with 1935. Details of production by principal countries follow:

## WORLD PRODUCTION OF RAYON YARN AND STAPLE FIBER

	1936 (In 1,000 pounds)	1935	1934
<b>Rayon Yarn</b>			
Japan .....	285,000	220,000	115,300
U. S. A. ....	278,000	257,500	210,300
Great Britain .....	116,100	111,800	92,855
Germany .....	112,000	104,000	90,000
Italy .....	88,000	86,000	84,700
France .....	42,500	53,000	58,000
Netherlands .....	20,000	20,000	20,500
Russia .....	14,000	12,500	12,000
Belgium .....	13,500	13,500	12,750
Canada .....	12,000	12,750	9,250
Poland .....	11,300	11,260	9,650
Others .....	29,865	28,550	28,000
<b>Total</b> .....	<b>1,022,265</b>	<b>930,860</b>	<b>783,305</b>
<b>Staple Fiber</b>			
Italy .....	100,000	66,000	22,000
Germany .....	65,000	32,000	18,000
Japan .....	40,000	13,500	2,500
Great Britain .....	28,350	10,000	3,000
France .....	12,000	8,000	4,000
U. S. A. ....	12,000	6,000	2,200
Others .....	2,150	1,200	700
<b>Total</b> .....	<b>259,500</b>	<b>136,700</b>	<b>52,400</b>

## German Pulp and Paper Industry in 1936

The year 1936 witnessed a continued improvement in the German paper industry which signified to most of its branches the last stage of the recovery in progress since 1933. The levels of industrial activity attained in 1936 were as near the natural limits set down by production capacity of the plants as practically possible. At the end of the year all paper mills in Germany were well supplied with orders and the outlook was for continued prosperity. Production figures for the entire year 1936 are not yet available. The total production figures for the first 6 months showed an advance of 11 per cent for paper and 6.5 per cent for board over the corresponding period in 1935, which indicates that the German output of paper and board will score a further substantial increase over 1935.

While the market situation has ceased to worry the paper manufacturer, the raw material supply is still a cause of some concern. Pulpwood supply is regulated in Germany by a system of governmental control covering both the import-

ed and domestic supply. The trend is to restrict as far as possible the imports of pulpwood and make more wood of domestic growth available for the paper industry. Increased lumbering operations resulted in availability of more pulpwood and the domestic supply in 1936 filled a greater part of the paper industry's requirements than in the previous years, causing imports to dwindle considerably. Rags and old paper which have largely been provided by imports are not always available in sufficient quantities. Chemical wood pulp is being consumed in steadily increasing volume by the staple fiber and explosives industries so that the paper mills, which are not producers of chemical wood pulp, can not always procure the requisite quantities promptly. In the past production of chemical wood pulp was essentially a branch of the paper industry, its other connection being the rayon industry which consumed only a small amount. However, the vigorous development of staple fiber production within the last 3 years, together with the greatly increased output of nitro-cellulose for ordinance purposes and numerous new uses for viscose other than in

rayon or staple fiber, has given a new significance to the chemical wood pulp industry.

Although there was a depreciation of various foreign currencies, German paper exports made a better showing during 1936 than ever before, advancing more than 10 per cent over the preceding year. The standardization of writing paper sizes carried out on a national scope during 1936 has been of great help in mill economy. Considering, however, that the German paper industry exports about 13 per cent of its output and has to adjust itself to foreign standards, the general effect of the standardization of domestic sizes can not be regarded as important. The paper manufacturer experiences difficulty in exporting, since that business is no longer governed by private business consideration; yet, exporting must be promoted in the interest of national balance of payments.

The output of paper boards increased appreciably over the preceding year, with demand for tar roofing stock particularly active. As this kind of paper is made largely of rags, there was a lively demand for rags which was ahead of the supply most of the time. The supply of straw was plentiful throughout the year, although the price trend for the raw material assumed an alarming climb. (Consul George A. Makinson, Frankfurt-on-Main)

## British Staple Fiber Production Expanding

Estimates of the 1936 staple fiber production in the United Kingdom were placed at 28,350,000 pounds as compared with 10,000,000 pounds in 1935 and 3,000,000 pounds in 1934.

## Japan Exported More Rayon in 1936

Exports from Japan of rayon and rayon mixed fabrics during the calendar year 1936 amounted to 527,547,000 square yards valued at 149,170,000 yen, compared with 424,193,000 square yards valued at 128,260,000 yen in 1935. (The average exchange value of the Japanese yen was \$0.2902 in 1936 and \$0.2871 in 1935.)

## Third Increase in Japanese Cellophane Prices

The Cellophane Sales Company decided on January 25, 1937, to advance the price of cellulose sheeting sold through that organ by 15 per cent. This is the third price rise in the cellulose sheeting industry in the past few months. The first rise of 10 per cent was made in November, while a second rise of 15 per cent came in December. Sharp rises in the prices of pulp, caustic soda, glycerine and other principal raw materials since the first and second price advances are given as the main reasons for the third price increase. This price advance was reported through the "Nikkan Kogyo Shimbun" (Daily Industrial News), Osaka, on January 28, 1937. (Assistant Trade Commissioner Carl H. Boehringer, Tokyo).



## Foley Discovers New Weather Prophet

During his recent visit to Texas, Harold J. Foley, executive vice-president of Powell River Company, discovered one form of monkey business that is definitely useful.

Down in the Houston zoo Mr. Foley discovered that Hans Nagle has built up a reputation as the foremost weather forecaster in the southwest. Mr. Nagle is the man who looks after the monkeys, and he uses the monkeys to keep him posted on the weather's vagaries. If the newspapers predict cold weather Mr. Nagle takes straw to the monkeys' cages. If the monkeys take the straw and start bedding their little houses—then, says Mr. Nagle—it's going to be cold. If the monkeys don't take the straws, then—all official forecasts to the contrary, it's not going to be cold.

The weather played some strange tricks on Powell River in February. Eight inches of snow fell during the second week of the month. By the 19th all the snow had gone and the golf courses were crowded. Three days later there was another eight-inch fall. Two days later it was gone, and then the following week it was snowing again. The weather had Powell River completely baffled. Mr. Foley thinks that some imported Texas monkeys might have helped.

## Huyck Showing Movies of Felt Making

Dave G. Jordan, a director of F. C. Huyck & Sons, paper making felt manufacturers of Albany, New York, was on the Pacific Coast in February and March, showing the new Huyck sound moving picture to groups of mill operators and executives.

The picture, which is entitled "Two Related Industries," shows the interdependence of the felt manufacturer and the pulp and paper industry, the benefits to be derived from close cooperation between them in the way of longer and more satisfactory felt life.

A number of views show the use of felts on paper machines but the major portion pictures the selection of the highest grade wools and the numerous highly technical processes through which the wool passes before it becomes a felt.

The moving picture, which takes about 40 minutes to exhibit, is exceptionally interesting and imparts its educational message in a simple straight forward manner. Each step in the manufacture of a felt is shown and described by the announcer, the two supplementing each other to produce a clear cut idea in the minds of those present.

After showing the picture in the Northwest Mr. Jordan took it to California and exhibited it to mill groups there. He was accompanied during the California part of his tour by John M. Fulton of the San Francisco office of the Pacific Coast Supply Company, representatives for F. C. Huyck & Sons on the West Coast.

## Heller & Merz Officer Visits Coast

F. M. Fargo, vice president of the Calco Chemical Co., and Heller & Merz Corp., arrived in Portland March 10 for a few days visit. Mr. Fargo, accompanied by his wife, spent a week or so in San Francisco before coming on to Portland.

## Rainier Charters Motorship for Japan

The Rainier Pulp & Paper Company of Shelton, Washington, chartered, around the middle of February, the Westfal-Larsen Line motorship Brandanger to carry a large cargo of wood pulp to Japan.

Eight thousand tons of pulp was loaded on the Brandanger in Tacoma shortly after March 1st after the arrival of the vessel from its regular service to the East Coast of South America.

This cargo, said to be the first full cargo of wood pulp to go from Puget Sound to Japan, is also said to be the largest cargo from the tonnage angle ever to be carried by one vessel across the Pacific.

The wood pulp has been accumulating at Shelton during the maritime strike and was lightered to Tacoma where it was loaded on the Brandanger. The ship sailed from Tacoma March 12th.

The shipment will relieve the acute shortage of rayon pulp caused by the maritime strike and the increased production of rayon and staple fiber in Japan.

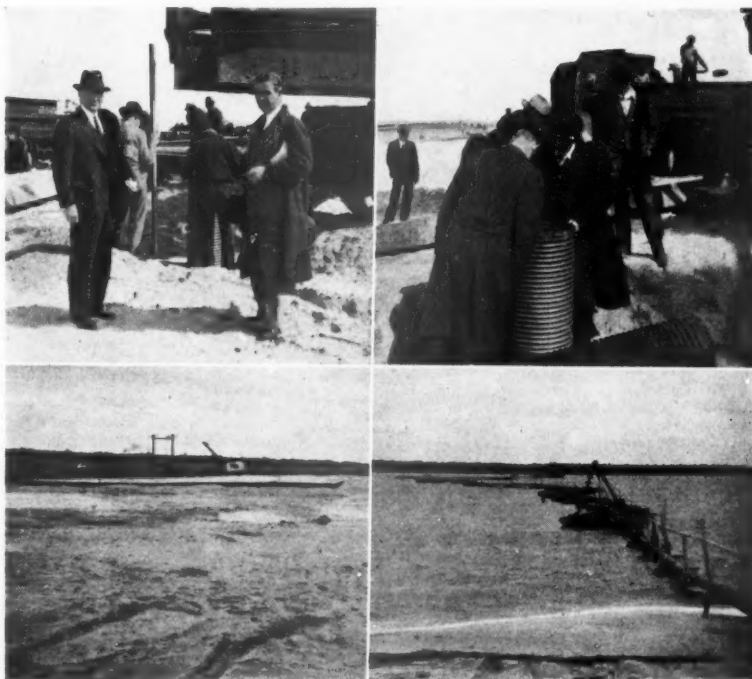
## Spaulding News

The Newberg plant of the Spaulding Pulp & Paper Co. has the new dryer in full time operation now, and is averaging more than 80 tons per day, as compared with former production of 46 tons per day average. With production sold ahead for more than a year in advance, prospects for the company appear good.

The furnaces in the boiler plant were recently rebuilt, and No. 3 digester relined.

Stockholders of the company met at the Newberg offices March 3 and discussed the reorganization plan, authorizing the committee to proceed and to call another meeting as soon as able to report further. The company's bonds, amounting to about \$350,000, are due in October, and the committee is authorized to arrange refinancing them. O. M. Allison, secretary; Fentress Hill, bondholders' trustee, and B. T. McBain, director, comprise the committee.

New officers for the year were to be elected at the annual meeting, scheduled for March 12.



FIRST PILING DRIVEN FOR THE BRUNSWICK, GEORGIA, MILL

These snapshots of the Brunswick Pulp & Paper Company's mill site at Brunswick, Georgia, were taken early in March by Kenneth Shibley of the Shibley Company, Seattle, while he was South and East on a business trip >>> At the upper left is O. C. Schoenwerk, consulting engineer, well known on the Pacific Coast as designer and builder of several mills >>> Mr. Schoenwerk designed the 150 tons per day bleached kraft pulp mill for the Brunswick Pulp & Paper Company >>> At the right in the same picture is R. D. Waterman, resident engineer for the Stone & Webster Engineering Corporation of Boston, who have charge of construction >>> At the top, right, several engineers are inspecting the first pile which was driven March 4th >>> Raymond concrete piles are employed with a bearing value of from 30 to 50 tons each, the length varying from 50 to 60 feet >>> The site, which is pictured below, was originally swamp land >>> It is being filled to a firm foundation with 70,000 cubic yards of sand dredged from the river bottom and conveyed by pipeline to the site, which is 450 by 1,000 feet >>> The Brunswick mill is about three miles from the town on a recently built spur of the Seaboard Airline Railway >>> The warehouse will be the first building constructed.

# Tests Concerning Strike And Show-Through of News Print

by I. H. ANDREWS\*

The subject of strike and show-through has been studied for a considerable time now by the news print manufacturer, ink maker, and the publisher, for each of these is very desirous of producing a printed newspaper without the defect of strike-through and other troubles associated with the printing. To date, some tests to be applied to news print with respect strike-through and ink absorption, have been put forward, the main ones being the oil flotation, the oil drop penetration, and the oil drop absorption tests, and, while possibly these tests do give information to a buyer of paper whereby they indicate that the result of some combination of characteristics has or has not changed, it is felt that they do not give satisfactory information. In other words it would appear that the test results do not give values relative to the actual condition of the paper with respect the trouble.

A reliable test would be of great importance from a research standpoint for the press man, ink maker and the paper manufacturer, then, too, it is also very desirable to have some test to apply to the paper so that when ink troubles result there would be some guide as to where the trouble lay. Particularly would the test be desirable for the ink maker and the press man for at least the paper manufacturer has a chance to study actual results and to check back into the characteristics of the news print through the manufacturing records.

The news ink, which is mainly a mineral oil carbon black pigment mixture, with or without a small amount of dyetoner, rosin oil or other compounds, is laid on the fibres forming the surface of the sheet in nor or less of a continuous film approximately 6/100,000 of an inch in thickness. Immediately the oil is drawn away from the pigment over the fibre surface down into the paper while the pigment is left on the fibres, forming the paper surface. The oil on spreading over the free surface presented by the fibres must do so as a film for there is not conceivably enough to flood the pores. Here it might be stated that the thickness of standard news print is approximately 320/100,000 of an inch and the free air space is roughly 60% of the volume. The oil travels over any surface presented by the fibres and when it reaches those fibres forming the opposite side of the sheet it will show, more or less, as an oiliness on that side, and this condition, when quite apparent, is usually referred to as strike-through. When the fibre surfaces are covered with a certain amount of oil it seems to make the black pigment of the print show through the paper, which effect varies and which condition lasts for some time more or less. So, in printing there is always occasioned, when conditions are not

right, the combined effect of strike-through and show-through.

The rate at which the oil is drawn away from the pigment, that is just when the ink is put on the paper as a thin film, determines the so-called rate of absorption and this decides whether smudging or offset is going to be obtained.

The oil flotation, oil penetration and oil absorption tests are all concerned with a relatively large volume of oil and the rate of travel of this oil through the pores of the paper as a solid flow, whereas in the actual printing operation it would see the oil is only travelling as a film over the fibre surfaces with which the oil comes in contact.

We have searched for some way in order to get a test which duplicates what happens in the actual printing, that is, to apply a definite film thickness of ink of reasonable area, to the paper under definite conditions, but as yet have not been able to do this satisfactorily. However, have attacked the problem from another angle and while possibly the results do not give indications that could be used as a routine test for strike and show-through, and ink absorption, they do seem to give useful information. In this particular test the oil drop absorption test is first carried out using a clear ink oil and a particularly small drop. The spread of the oil outline as shown on the paper is then measured at regular periods and from these measurements the curve of rate of spread is made up. It will be appreciated, of course, that at the early stages the oil is still flooding the pores more or less, but as time goes on the flow should be a true film spread.

The oil film spread rate has been followed on news in a number of instances and particularly in the case of (a) Effect of Calendering, and (b) Percent Sulphite. Where these two characteristics are concerned, we have some

very definite information on strike and show-through and ink absorption by printing tests and actual experience, from which we know that calendering increases the strike and show-through, and over-calendering makes it particularly bad, and, further, ink absorption is retarded. With the increase of percent sulphite the strike and show-through increases considerably.

In the case of calendering the oil absorption test value increases as the calendering increases and the oil flotation value does not show much change. In the case of increase in sulphite content the oil absorption value increases and the oil flotation increases a little. Neither seem to give indications which can be linked up with the actual strike and show-through found.

Where the rate of film spread is concerned it would seem that this should be effected mainly by two factors, assuming the same amount of oil to start with (1) The capacity of the fibres i.e. the fibre surface for the oil film to spread over and the characteristics of that surface, and (2) The force that causes spreading. That is, the rate of film spread throughout the period of movement will be governed by the amount of these two factors and their effect should be apparent by the characteristics of curve of film spread.

It would be expected of the curve that (a) if capacity is increased and the force causing spread is increased proportionally then there would be a deviation of the curve from original and eventually it should deviate enough to show that equilibrium has come more quickly, or vice-versa.

(b) If capacity is increased and the force is increased in greater proportion, then the curve should tend to higher rates in the initial part but later showing equilibrium to come more quickly,

TABLE I  
Effect of Per Cent Sulphite on Rate of Spread of Ink Oil in Newsprint

Hours	Wt. of Oil Drop	25	50	100	150	200	250	300	400	500
<b>Handsheets</b>										
0% Sulphite—										
100% Groundwood...	3.0 meg.		2.26	1.40	1.02	0.88	0.72	0.52	0.45	
60% Sulphite—										
40% Groundwood...	3.0 mg.		2.26	1.40	1.02	0.88	0.72	0.52	0.45	
<b>Newsprint</b>										
0% Sulphite—										
100% Groundwood...	3.0 mg.	3.60	1.86	1.22	1.00	0.90	0.76	0.68	0.46	
20% Sulphite—										
80% Groundwood...	3.0 mg.	3.45	2.00	1.30	1.05	0.90	0.74	0.60	0.43	
<b>Characteristics of Paper Used</b>										
<b>Ream Weight</b>										
		<b>Handsheets</b>		<b>Newsprint</b>						
		0% Sulphite	60% Sulphite	0% Sulphite	20% Sulphite					
Ream Weight		40.5 lbs.	42.0 lbs.	35.7 lbs.	35.7 lbs.					
Thickness (1/1000")		4.5	4.5	4.13	4.1					
Oil Drop Absorption Time		178	118	281	390					

\*Control Superintendent, Powell River Company, Limited, Powell River, B.C. Presented at the dinner held by the Pacific Section of TAPPI at Vancouver, B.C., February 4th, 1937.

or opposite if the force increase was in less proportion to the capacity increase.

(c) If a change in the conditions of manufacture of the news print were occasioned which made no apparent change in the rate of film spread curve then it is to be expected that there was no change produced in the fibre capacity or for the causing the oil film to spread.

In some actual tests where curves were made from paper having increasing amounts of sulphite, up to 60% sulphite content, the curves were found to hold practically identical and therefore we would conclude that the increase in sulphite has not changed the fibre capacity nor the force causing flow. Thus these factors cannot be responsible for the appreciable increase in strike and show through as found by actual test and experience, and we must conclude that some other factor is causing the increase. Data with respect to the rate of spread curves for variation in percent sulphite is in Table I.

In the case of calendering effect it would appear from the curves that the conditions as noted for (a) are found, i.e. that calendering decreases the capacity and force, causing spreading, is reduced approximately proportionally. In the light of actual experience the difference shown by the curves is not as great as would be expected and there is again the suggestion that some other factor has a bearing as well. Rate of film curve data with respect calendering effect is in Table II.

From a consideration of the actual printing tests and experience where high-calendering and the effect of sulphite is concerned, indications are that show-through greatly predominates over strike-through and therefore, this other factor can possibly be one of transparency. In other words, in the case of calendering, is the fibre contact changed so that the oil film renders the mass more transparent, and in the case of increase in sulphite content is the oil film-sulphite fibre combination more transparent than the oil film-groundwood fibre combination?

That there can be decided changes in the rate of spread will be noted from the data on a special news print in comparison to standard news as follows:

#### EFFECT OF FIBRE CHARACTERISTICS ON RATE OF SPREAD OF INK OIL IN NEWSPRINT

Hours		25	100	200	400	600
	Wt. of Oil Drop					
Standard						
News	2.5 mg.	2.9	1.40	1.00	0.51	0.33
Special						
News	2.5 mg.	3.3	1.10	0.45	0.064	0.00
Characteristics of Paper						
		Standard		Special		
		News		News		
Ream Weight	.....	32.0 lbs.		35.7 lbs.		
Thickness (1/1000")	.....	3.45		3.79		

TABLE II

#### EFFECT OF CALENDERING ON RATE OF SPREAD OF INK OIL IN NEWSPRINT

(Rate of Spread Sq. MM. Per Hour at 80° F.)

Hours	25	50	100	150	200	250	300	400	500
Wt. of Oil Drop									
Uncalendered	2.58 mg.	4.00	2.26	1.30	0.97	0.80	0.66	0.62	0.42
Normal Calendering	2.60 mg.	4.76	2.78	1.53	1.07	0.94	0.87	0.80	0.66
High Calendering	2.56 mg.	5.18	3.06	1.80	1.36	1.18	1.06	0.95	0.79

#### Characteristics of Paper Used (Paper Manufactured on Same Machine and Together)

	Uncalendered	Normal Calendering	High Calendering
Ream Weight	31.9 lbs.	31.5 lbs.	31.5 lbs.
Thickness (1/1000")	5.91	3.73	3.00
Moisture (as made)	9.1%	7.5%	9.1%
Oil Drop Absorption Time (Secs. per mg. oil 68° F.)	104	322	850

TABLE III

#### EFFECT OF REAM WEIGHT ON SPREAD OF INK OIL

Hours	25	50	100	150	200	250	300
Wt. of Oil Drop							
A 27.8# 3.0 mg. Area sq. mm.	470	572	694	777	848	915	976
Rate sq. mm./hr.	5.5	3.22	1.95	1.50	1.38	1.26	1.18
B 60.5# 3.0 mg. Area sq. mm.	250	304	373	420	463	500	532
Rate sq. mm./hr.	2.90	1.80	1.08	0.86	0.80	0.68	0.54

#### Characteristics of Paper Used (Made of Handsheets at 20% Sulphite and 80% Groundwood)

	A	B
Ream Weight (500-24"x36")	27.8 lbs.	60.5 lbs.
Thickness (1/1000")	3.12	6.48

Further, oil spread data on sheets where the variable is ream weight only, shows that the area of spread varies almost inversely as the ream weight. This would suggest that, in some cases, the areas of spread would give values of the relative capacities of the paper being investigated. Data in connection with the above is in Table III.

It would seem that where strike-through and show-through is concerned, a study of the oil film spread should give interesting information from a research standpoint at least. At the same time it would seem that the question of the effect of the oil film on the transparency of the paper is one that would yield valuable information on investigation.

#### News Print Production Up 18% in January

Production in Canada during January, 1937, amounted to 287,691 tons and shipments to 262,692 tons, according to the News Print Service Bureau. Production in the United States was 80,005 tons and shipments 75,637 tons, making a total United States and Canadian news print production of 367,696 tons and shipments of 338,329 tons. During January, 28,154 tons of news print were made in Newfoundland, so that the total North American production for the month amounted to 395,850 tons. Total production in January, 1936, was 333,504 tons.

The Canadian mills produced 59,871 tons more in January, 1937, than in January, 1936, which was an increase of twenty-six and two-tenths per cent. The output in the United States was 669 tons or one per cent more than in January, 1936, in Newfoundland production was 1,806 tons or six and eight tenths per cent more, making a total increase of 62,346 tons, or eighteen and six tenths per cent above January, 1936.

Stocks of news print paper at Canadian mills were reported at 49,505 tons at the end of January and 18,673 tons at United States mills, making a combined total of 68,178 tons compared with 38,745 tons on December 31, 1936. Considerable tonnage was accumulated at points from which water shipments will later be made.

#### Pulp Importers Re-Elect Officers

All officers were re-elected to serve during 1937 at the annual meeting of the Association of American Wood Pulp Importers, held in the Carpenter Suite of the Waldorf-Astoria Hotel on February 11. Edward E. Barrett, of The Mead Sales Company, Inc., New York, was continued as president for another year, Carlton B. Overton, of Castle & Overton, Inc., was again chosen vice president; J. Allan Millar, of the Perkins-Goodwin Company, was re-elected treasurer, and Seymour Hollister, of The Mead Sales Company, Inc., was renamed secretary.

These officers together with Nils R. Johaneson, of Johaneson, Wales & Sparre, Inc., compose the association's Board of Directors for the current year. It was voted also to continue the personnel of all standing committees for another year.



## Shibley Company to Represent Bristol in Pulp and Paper Field

**Bristol Also Opens Seattle Office To Amplify Service to the Industry**

A move of interest to the pulp and paper industry of the Pacific Northwest was the recent appointment by The Bristol Company of Waterbury, Connecticut, of the Shibley Company of Seattle as representatives for Bristol recording, controlling and indicating instruments in the pulp and paper industry.

The engineering involved in the application of Bristol equipment is being handled by William R. Gibson of the Shibley Company, who has enjoyed a wide experience in the pulp and paper industry. Mr. Gibson is an engineering graduate of the University of London and for eight years he had charge of construction and erection work in England and Scotland. During the World War he put in four years, mostly in Egypt and Palestine, with the Royal Engineers of the British Army, where he had charge of water supply and pipe line work.

Coming to this continent he was for four years with the Whalen Pulp and Paper Company of British Columbia followed by four years as chief engineer for the Washington Pulp & Paper Corporation at Port Angeles, Washington. The next several years he devoted to construction work on new pulp and paper mills in the Pacific Northwest. Later he was plant engineer for the Olympic Forest Products Company, Grays Harbor Pulp & Paper Corporation and the Rainier Pulp and Paper Company.

During this period as plant engineer for the pulp mills, Mr. Gibson was particularly interested in the use of instruments, doing a considerable amount of work on measuring steam and water in connection with the design of the systems of distribution now in general use by this group of mills.



**WILLIAM R. GIBSON**  
Engineer with the  
Shibley Company



**J. W. PECKHAM**  
Northwest Manager  
The Bristol Company

Kenneth Shibley, general manager of the Shibley Company with offices at 1201 Textile Tower, Seattle, is widely known in the pulp and paper industry for his work on water treatment and with power plant problems. He is a civil engineering graduate from University of California and has been closely connected with the pulp and paper industry on the Pacific Coast since 1921.

### Bristol Opens Seattle Office

The Bristol Company, Waterbury, Conn., announces that it has opened a sales and service office at 5525 White Building, Seattle, Washington in order to extend its service facilities to meet the growing demand for Bristol's recording, controlling, and indicating instruments on the Pacific Coast. The new office will be under the management of J. W. Peckham.

This Seattle office augments a sales and service organization of long standing in the Pacific Coast states, comprising the branch office now maintained in the Rialto Building, San Francisco. A second office at 747 Warehouse Street, Los Angeles, and the Bristol's service laboratory and branch factory at 311 Minna Street, San Francisco where instruments are built and repaired.

Mr. Peckham, manager of the Seattle office, brings to his new responsibilities and duties a rich background of experience in the industrial application of instruments and automatic controls. Born and raised in Rhode Island, he is a graduate of the Rhode Island State College with a B. S. degree in electrical engineering. His business career includes several years with such concerns as the General

Electric Company at Schenectady, N. Y., and with The Bristol Company as sales and service engineer.

In the pulp and paper industry Mr. Peckham and Mr. Gibson will work closely together to provide a most valuable instrument engineering service for the mills in the Pacific Northwest.

### Southwest Publishers Sign News Contracts

Most of the southwestern publishers have signed up with Powell River Company for 1937 contract at the basic \$42.50 a ton price, it was announced at the company's Vancouver head office.

There was a good deal of negotiating over contracts with Texas publishers, and William Barclay, manager of Powell River Sales Company, selling unit for Powell River Company, made two trips to the southwest to confer with them. He was expected back by the middle of March with the contracts settled. Powell River ships direct by water to Houston, Texas.

Powell River Company does not regard the \$5,000,000 yellow pine newsprint project under Dr. Herty as a protest against Canadian newsprint. On the contrary, Powell River executives are watching the development with a good deal of interest because they are skeptical of its commercial merit, with newsprint prices at their present level. As an experiment in utilizing a species that hitherto has not been extensively used in sulphite and groundwood pulp manufacture, however, the enterprise is considered significant.

"With the need for newsprint that exists at present and their great resources in pitch pine, no wonder Texas feels like experimenting," said a Powell River official. "We'd be doing the same thing here under the same circumstances."

### Log Shortage in B. C. Not Affecting Pulp Mills

Although the worst log shortage in twenty years has crippled British Columbia sawmills, the pulp and paper industry has escaped unscathed. All the mills had accumulated an ample supply of pulpwood.

Powell River Company does most of its own pulpwood cutting and a huge supply of material was held in reserve last fall. With production geared to 100 per cent of capacity, the company took no chances on a possible shortage.

The same holds true of Pacific Mills, Ltd., at Ocean Falls, which, however, buys a larger proportion of its pulpwood in the open market.

B. C. Pulp & Paper Company was also well-stocked, both at Port Alice and Woodfibre.

### Form Barking Machine Company

Early in March the Log Debarking & Sizing Corporation was incorporated in Oregon with offices in Portland. The purpose of the incorporation is to manufacture the Kirkwood log barking machine.

John Schibel is president, A. M. Kirkwood is vice-president and Kathryn Schibel is secretary-treasurer.

# Nickel Alloy Steels and Cast Irons In the Pulp and Paper Industry

by A. G. ZIMA\*

Those charged with the responsibility of operating a manufacturing plant are generally desirous of obtaining information which may lead the way to higher operating efficiency, lower maintenance cost and improvement of product. The pulp and paper manufacturers are particularly concerned with these questions as their products demand close control throughout all phases of manufacture. Moreover, failure of certain vital units in the plant may result in costly shut-downs for repairs.

It is the purpose of this paper to describe the progress achieved in the development of nickel alloy steel and cast irons for the pulp and paper industry, and to call attention to the benefits that may be derived from their use. Since time will not permit a detailed discussion of the metallurgical characteristics of these alloys, some salient data pertinent to their applications will be presented with specific illustrations. The discussion will center chiefly around the sulphite pulping process.

## Nickel Alloy Steels, Constructional Type

This group embraces a series of steels containing from 0.50 to 5.00% nickel or combinations of nickel with other alloying elements such as chromium, molybdenum, vanadium, etc. Each of these steels is characterized by some property which enhances its utility for specific applications. For example, a steel which may be excellently adapted for small highly stressed bolts, studs, etc., may not be suitable for heavy shafting or large forged gears and pinions. Similarly, another steel particularly suited for wear resistance would probably not be selected for service involving high impact stresses.

Briefly, the nickel steels of the constructional type are characterized by their toughness combined with high strength and elastic properties, their resistance to fatigue and their ability to withstand shock. A definite measure of improved corrosion resistance when exposed to the atmosphere and other environments is also provided by nickel steels of the constructional type. Let us consider briefly some of the steels in this group with particular reference to their application to the pulp and paper industry.

Practically every type of plant has a bolt problem of one sort or another. All mill operators have experienced the annoyance caused by leakage between flanged fittings due to stretching of bolts and studs. This may be doubly embarrassing if, in an attempt to tighten the offending bolt, it suddenly snaps off when the wrench is applied. Many types of machinery, particularly those subjected to vibration, frequently require adjustment or tightening to compensate for stretching of bolts. A solution to



this problem often lies in the selection of a suitable alloy steel having high elastic properties and resistance to fatigue. Moreover, some real economies may be effected through the reduction of the width of flanges when high strength alloy steel bolts or studs are employed.

The SAE 3100 series containing approximately 1.25 Ni and 0.60 Cr are among the best known of the low cost alloy steels. These steels, with about 0.30-0.40 C are especially well suited for highly stressed bolts, studs, nuts, shaftings, etc. up to 2" in section thickness. When oil or water quenched and tempered between 800-1250°F., these steels possess high elastic properties together with excellent impact and fatigue resistance. (See Table I). They also possess excellent resistance to "creep" at temperatures up to 1000°F.

The SAE 3200 steels, containing about 2% Ni and 1% Cr with carbon around 0.40 or 0.50, are often used where somewhat better properties are desired than can be obtained with the 3100 series just described. They are among the most dependable of nickel alloy steels. Their depth hardening properties are superior to those of the SAE 3100 series, thus making them better adapted for use in heavy sections. (See Table I). They are used for vital parts such as side bars for chain links or for highly stressed pins, required together with high ductility. This steel, hardened in oil and tempered to hardness of approximately 400 Brinell, should also be useful for hog disc or chipper knives.

Heavy shafting such as used on pulp grinders or in the transmission of power from motors, turbines or engines is frequently very highly stressed. The nickel alloy steels shown in Table II are well adapted for this service owing to their depth hardening characteristics and

ability to develop high strength and toughness in massive sections.

The low carbon 2.75% nickel steels are especially well suited for heavy forgings subjected to high complex stresses. When compared with good quality plain carbon steels containing 0.45 to 0.50% carbon, these low carbon nickel steels, heat treated to equivalent tensile strengths not only develop higher elastic properties, and higher fatigue limits, but also show from four to five times higher Izod impact values. This comparison is shown quite clearly in Table III.

The low carbon nickel steels are becoming increasingly popular in the railroad industry for such forgings as piston rods, side rods, driving axles, crank pins, etc. In some of these applications, over-stressing resulting from wear on certain members, is frequently encountered.

Available evidence shows that the ability of a steel to redistribute stress, decreases progressively as the amount of carbide in the steel is increased (as the carbon is increased.) From this point of view therefore, a steel with 0.25% carbon and 2.75% nickel should have more nearly the characteristics desired with respect to ability to redistribute stresses in service than would a 0.45-0.50 carbon plain carbon steel of equivalent tensile strength. It is believed that some of the troublesome heavy shafting problems encountered in pulp and paper mills might be alleviated by consideration of this principle.

Earlier in this discussion it was mentioned that certain nickel steels of the constructional type provide a definite degree of resistance to certain mild types of corrosion. The copper nickel steels, developed within recent years are particularly adapted to this service. These steels containing from 0.08 to 0.25% C, 0.75-2.00% Ni, 1.00-1.40% Cu and 0.00-0.20 Mo are now finding extensive use in the form of sheets, plates, tubes and various standard structural shapes used in the construction of tanks, truck bodies, railway cars and many types of miscellaneous equipment where an improvement in atmospheric and other mild forms of corrosion are required. These steels have proven particularly advantageous in hopper cars and truck bodies used in handling coal and other corrosion-promoting products. Tests conducted over a period of several years show that these steels are 4 to 6 times as resistant to atmospheric corrosion as plain carbon steels and 2 to 3 times more resistant than ordinary copper bearing steels. Moreover, in addition to their corrosion resistant properties, these steels provide an appreciable improvement in mechanical properties over the plain carbon steels, thus permitting the use of lighter gage material.

They are easily fabricated and respond readily to welding. It is believed that the pulp and paper industry might derive considerable benefit through the use

\*Western Representative Development and Research Division, International Nickel Company, Los Angeles, California. Presented at the dinner meeting held by the Pacific Section of TAPPI at Olympia, Washington, March 2nd, 1937.

TABLE I

Typical Properties of Quenched and Tempered Nickel Alloy Steels Applicable to Pulp and Paper Equipment\*  
(Medium Grain-Size Characteristics)

SAE Steel No.	Size of Test Specimen (Inches)	Approx. Quenching Temperature in Oil (Deg. F.)	Tempering Temperature (Deg. F.)	Yield Point (Lb. Per Sq. In.)	Tensile Strength (Lb. Per Sq. In.)	Elongation in 2 In. (Per Cent)	Reduction of Area (Per Cent)	Brinell Hardness No.	Izod Impact (Ft.-Lb.)
2340	½" to 1½" rounds	1425°	900	140,000	155,000	18	57	338	36
			1,000	120,000	136,000	21	60	300	50
			800	139,000	159,000	17	49	325	---
3140	½" to 1½" rounds	1500°	1,000	110,000	131,000	20	57	270	---
			1,000	119,000	142,000	17	57	285	55
			1,100	105,000	128,000	19	60	255	68
			1,200	93,000	114,000	22	62	235	80
			800	114,000	146,000	16	47	290	---
X-3140	½" to 1½" rounds	1475°	1,000	89,000	120,000	19	53	240	---
			1,000	130,000	154,000	16	55	315	---
			1,100	113,000	137,000	20	59	282	---
			1,200	102,000	122,000	21	63	258	---
			800	135,000	155,000	16	45	320	---
3240	½" to 1½" rounds	1475°	1,000	108,000	135,000	19	53	275	---
			800	178,000	200,000	13	47	400	22
			1,000	140,000	160,000	17	55	330	44
3250	½" to 1½" rounds	1500°	1,000	126,000	154,000	19	47	310	---
			400	233,000	280,000	7	31	535	9
			600	212,000	245,000	9	38	475	8
3340	½" to 1½" rounds	1425°	800	183,000	205,000	11	43	410	11
			1,000	145,000	167,000	17	52	340	30
			400	245,000	270,000	10	40	500	15
			600	220,000	248,000	11	43	460	11
			800	182,000	211,000	13	47	395	13
4340	2" rounds	1450°	1,000	145,000	170,000	18	53	325	30
			1,000	136,000	157,000	19	55	315	---
			800	197,000	210,000	12	43	420	---
			1,000	165,000	180,000	14	48	370	---
			800	170,000	182,000	14	52	380	25
4640	½" to 1½" rounds	1500°	1,000	132,000	150,000	17	57	310	42
			500	235,000	269,000	10	38	510	10
			800	182,000	195,000	13	49	405	23
4650	½" to 1½" rounds	1475°	1,000	144,000	162,000	17	53	330	38

\*Data in this table abstracted from "Properties and Applications of Quenched and Tempered Nickel Alloy Steels," published by the International Nickel Co., Inc.

of the copper nickel steels, particularly in the construction of certain equipment operating in wet or damp surroundings.

#### Cast Nickel Alloy Steels

A discussion of the constructional type nickel alloy steels would be incomplete without some mention of these steels in the cast form.

Nickel produces similar qualitative effects upon the properties of both cast and wrought steels. The cast nickel alloy steels are used very extensively where it is not practicable or possible to employ forgings. As in the case of the wrought steels, the selection of a suitable steel for casting is a matter which should be considered carefully. When choosing a cast steel for a specific application, the properties or performance desired should be given first attention. The size and shape of the piece also determine to a great degree the composition and heat treatment to be employed in obtaining these results. Quite often, the type of melting or heat treating equipment available influence the selection of a steel. Finally after these considerations there remains the problem of choosing the most economical steel for the purpose. Table IV outlines briefly typical properties of various cast nickel alloy steels. The pulp and paper industry uses such steels to advantage for such parts as machine frames, gears, sprockets, hog discs and innumerable miscellaneous castings requiring resistance to high static and dynamic stress or wear.

TABLE II

#### NICKEL ALLOY STEELS FOR HEAVY SECTIONS

(Tests Made on Specimens Taken Midway Between Center and Outside)

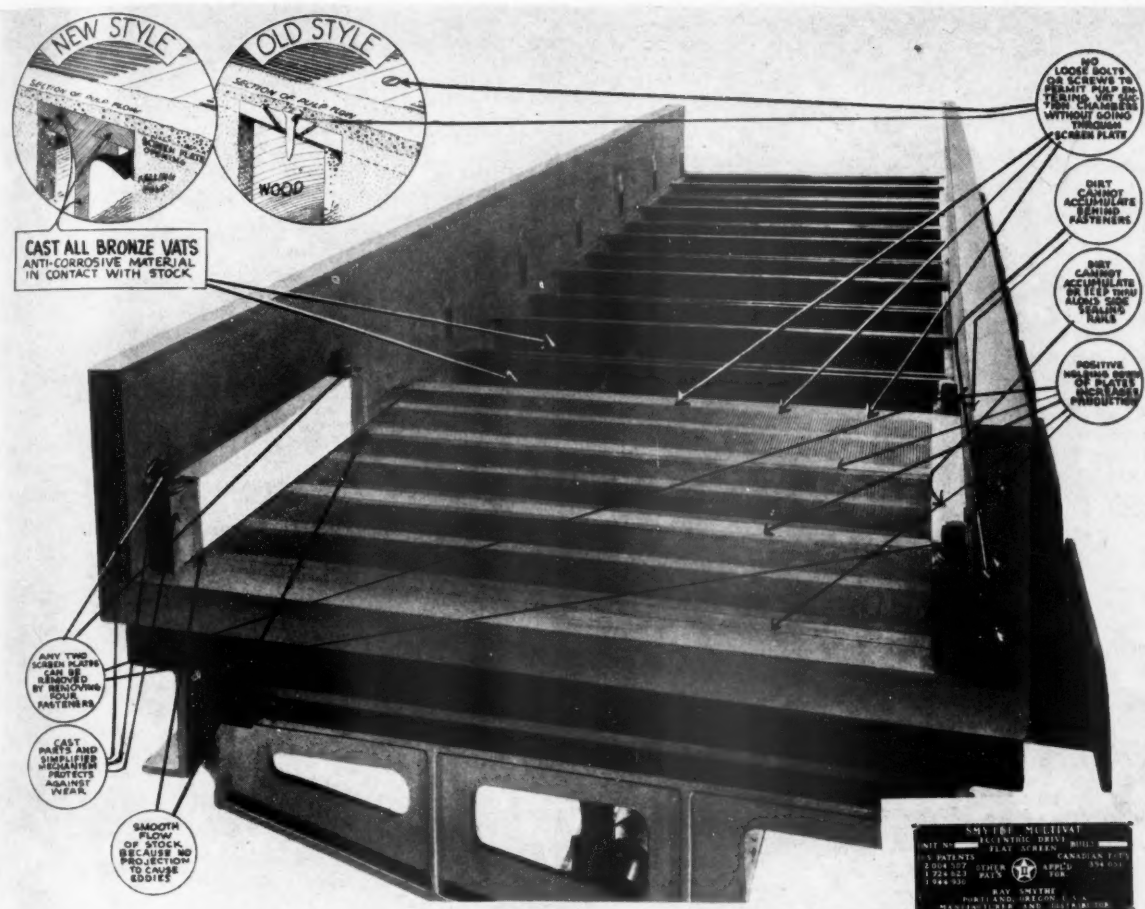
SAE Steel No.	Size	Heat Treatment	Yield Point (psi)	Tensile Strength (psi)	Elong. 2" %	Red. of Area
3140X	7" round	1500° F. Water 1180° F. Draw	80,000	108,000	22	60
2340	10" round	1500° F. Oil 1200° F. Draw	88,000	107,000	21	59
3250	12" round	1450° F. Oil 1050° F. Draw	104,000	118,000	18	57
4340	17" round	Normalized and Tempered	70,000	100,000	20	50

TABLE III

#### PROPERTIES OF CARBON AND NICKEL FORGING STEELS

Steel	Heat Treatment	Yield Point (psi)	Tensile Strength (psi)	Elong. 2" %	Red. of Area	Izod	Fatigue Limit	Fatigue Ratio
Normalized and Drawn								
.46 C, .62 Mn	1475° F. Air; 1200° F.	51,300	86,200	30.0	54.3	17	40000	46.5
.24 C, .94 Mn 2.7 Ni	1475° F. Air; 1100° F.	63,000	87,800	36.0	71.1	96	54000	62.5
Quenched and Drawn								
.52 C, .70 Mn	1500° F. Air; 1150° F.	64,000	100,900	26.5	57.3	22	49000	49
.24 C, .94 Mn 2.7 Ni	1475° F. Oil; 950° F.	85,200	105,900	28.5	68.5	102	57000	54





## CORRECT VAT DESIGN INSURES CLEAN PULP

- A study of the above diagram will reveal the superiorities of the SMYTHE MULTIVAT FLAT SCREEN vat design.
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## Stainless Steels

Those associated with the paper industry are quite familiar with the merits of stainless steels in sulfite pulping. However, a review of certain applications of these steels together with some comparative performance data may be of interest at this time.

Not many years ago, the maintenance costs due to corrosion of sulfite pulping equipment was estimated at approximately \$100.00 per ton year of daily production. The advent of stainless steels has contributed much toward minimizing this loss and in addition has made practicable certain improvements in equipment and practice such as circulation systems, indirect heating, automatic temperature and pressure control and the "hot acid" system.

When nickel and chromium are dissolved in iron in the proper proportions, a series of alloys practically inert to the chemical action of sulfite liquor is the result. The amounts of chromium and nickel in the alloys of this series vary from 17 to 30% chromium and from 5 to 23% nickel. In addition, other alloying elements such as molybdenum, titanium or columbium are sometimes introduced for certain specific purposes.

The wrought alloys of this series available in the form of seamless tubing, sheet, wire, bars and other miscellaneous shapes are shown in Table V.

Those alloys commonly used as castings employed in sulfite pulping service as shown in Table VI. Since castings do not receive the benefit of hot and cold working, it is desirable that they contain somewhat higher percentages of alloys than commonly used in the wrought materials used for similar service. With this in mind, the Technical Association

of the Pulp and Paper Industry formulated what is known as specification No. E-400s for Chromium-Nickel-Iron Alloy Castings for Sulfite Pulp Processing Equipment in which the minimum percentage for chromium was set at 20% and for nickel at 9%.

Owing to the shrinkage exhibited by these alloys during solidification in the mold, the foundryman must employ very careful practice if he is to obtain satisfactory castings free from shrinkage cavi-

ties and cracks. For this reason, it is essential that he be provided with suitable pattern equipment and that the castings be designed, as far as possible, with particular attention to uniformity of section. Generally speaking, the production of satisfactory stainless steel castings requires considerable skill in melting and molding practice, and therefore, should be assigned to experienced foundries.

TABLE IV  
SOME TYPICAL CAST NICKEL ALLOY STEELS

Steel	Heat Treatment	Yield Point (psi)	Tensile Strength (psi)	Elong. 2 %	Red. of Area %	Izod Ft. Lbs.
A	1650° F. Air Cool } 1150° F. Draw ____ }	45,000 to 55,000	75,000 to 85,000	32-25	65-45	80-40
B	1650° F. Air Cool } 1200° F. Draw ____ }	55,000 to 65,000	90,000 to 105,000	28-22	55-42	50-30
C	1525-1550° F. Air Cool ____ } 950-1225° F. Draw ____ }	60,000 to 70,000	90,000 to 105,000	30-25	60-45	60-20
D	1550° F. Oil ____ } 1200° F. Draw ____ }	80,000 to 85,000	100,000 to 105,000	25-20	50-40	
E	1650° F. Air ____ } 1200° F. Draw ____ }	55,000 to 65,000	90,000 to 95,000	25-20	60-50	

## Composition Of Above Steels

Steel	C	Mn	Si	Ni	Cr	Mo
A	0.20 Max.	0.60-0.90	0.25-0.40	2.00 Min.		
B	0.20-0.30	0.70-0.90	0.25-0.40	2.00 Min.		
C	0.26-0.33	1.35-1.65	0.30-0.40	1.30-1.50		
D	0.40-0.50	0.60-0.80	0.30-0.40	1.25-1.50	0.60-0.80	
E	0.25-0.35	0.60-0.80	0.30-0.40	1.25-1.50		0.30-0.35

1. Steel C best adapted for light and medium sections.
2. Steel E welds readily.

TABLE V  
COMPOSITION AND MECHANICAL PROPERTIES OF WROUGHT\* CHROMIUM-NICKEL-IRON ALLOYS USED IN SULFITE SERVICE

Alloy Type	Ni	Cr	Chemical Composition Mo	Si	C	Fe	Tensile Strength lbs./sq. in.	Yield Strength lbs./sq. in.	Brinell Hardness	Coefficient of Thermal Expansion per Degree F. (32-212° F.)
A**	8-10%	17-20%	---	0.5%	.06-.10%	Bal.	80-90,000	40,000	135-165	9.6 x 10 <sup>-6</sup>
B**	8-14%	16-22%	2-4%	0.5%	.06-.15%	Bal.	95,000	45,000	170-200	9.6 x 10 <sup>-6</sup>
C	11-13%	17-19%	---	0.5%	.06-.15%	Bal.	80-90,000	40,000	135-165	9.9 x 10 <sup>-6</sup>
D**	12-16%	22-28%	---	---	.25% max.	Bal.	90-110,000	40-60,000	150-200	8.3 x 10 <sup>-6</sup>
E	22%	20%	1%	3%	.07%	Bal.	100-110,000	35-40,000	150	8 x 10 <sup>-6</sup>
F***	---	---	---	---	---	Bal.	85-95,000	40-45,000	150-185	9.3 x 10 <sup>-6</sup>
G**	5%	26%	1.5%	0.40%	.09%	Bal.	90,000	60,000	170-190	6.9 x 10 <sup>-6</sup>

\*Figures on mechanical properties refer to the material in the annealed condition.

\*\*Available in the form of seamless tubing. Centrifugally cast pipe and welded tubes of all compositions are available.

\*\*\*Same as A plus titanium or columbium to the extent of 6 times the carbon content which preferably should be less than 0.07%.

The following special modifications of type A can be obtained:

1. Alloys containing not more than 0.07% carbon.
2. Alloys containing a minimum of 20% chromium and 10% nickel.

TABLE VI  
COMPOSITION AND MECHANICAL PROPERTIES OF CAST CHROMIUM-NICKEL-IRON ALLOYS USED IN SULFITE SERVICE

Alloy Type	Ni	Cr	Chemical Composition Mo	Si	C	Fe	Tensile Strength lbs./sq. in.	Yield Strength lbs./sq. in.	Brinell Hardness	Coefficient of Thermal Expansion per Degree F. (32-212° F.)
A*	9%	20%	---	---	.07-.20%	Bal.	75,000	35,000	150	9.6 x 10 <sup>-6</sup>
B	10%	20%	3.5%	0.5%	.07-.15%	Bal.	75,000	35,000	150	9.6 x 10 <sup>-6</sup>
C	8-12%	22-26%	---	---	.25% max.	Bal.	75,000	35,000	150	9 x 10 <sup>-6</sup>
D	10-15%	26-30%	---	---	.30% max.	Bal.	85,000	50,000	190	8 x 10 <sup>-6</sup>
E	22%	20%	1.0%	3.0%	.07% max.	Bal.	70,000	30,000	145	8 x 10 <sup>-6</sup>

\*Minimum alloy content required by Specification No. E-400 S for Chromium-Nickel-Iron Alloy Castings for Sulfite Pulp Processing Equipment adopted by the Technical Association of the Pulp & Paper Industry, Technical Association Papers, Series XVI, No. 1, June, 1933, page 228.



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**PULP** of uniform quality provides the paper maker with a known ingredient. It enables him to standardize on his beating procedure for any given stock with assurance that established beating time and roll settings will have the desired effects. The uniformity of Weyerhaeuser sulphite is the result of constant production control maintained by men who will continue to furnish paper makers with a reliable material—a pulp that can be counted upon to meet the requirements of your production schedule.

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### Relationship of Heat Treatment and Carbon Content

In a discussion of stainless steels, the relationship of heat treatment and carbon content should be mentioned. Aside from relieving the stresses which usually exist in castings, proper heat treatment insures that the carbon is dissolved and will not be present in the form of chromium carbides which usually occur at the grain boundaries and which may be formed during solidification of a casting or when heating to temperatures ranging from 1000 to 1400° F. during hot working or welding. The presence of these carbides results in a depletion of chromium in the chromium-nickel-iron alloy immediately adjacent to the grain boundaries, in this manner impairing its resistance to corrosion. Subsequent corrosion therefore often occurs at the grain boundaries where the carbides are concentrated. To minimize this danger, stainless steels containing more than about 0.07% carbon and less than 26% chromium are regularly heat treated after casting, welding or forging. The heat treatment consists of heating thoroughly at a temperature above 1800° F. to insure complete solution of carbides, followed by quenching through the critical range (1400°F.-900°F.). Although the low carbon or high alloy materials are sometimes given a similar treatment, experience has shown that this precaution is not essential.

In fact, to avoid improper heat treatment of large and intricate pieces, it is believed better practice to choose a composition that need not be heat treated. Stabilizing elements such as titanium and columbium are sometimes added to eliminate the necessity of heat treatment. As a precaution, however, it is well to remember that these elements are introduced for a specific purpose, and therefore, cannot be expected to solve corrosion problems when the other alloying elements in the material are lacking or not properly proportioned.

Regardless of the chemical composition of stainless steels, complete heat treatment should be given to relieve strains in parts that have been subjected to severe cold work.

### Galvanic Corrosion

Galvanic contacts between the chromium-nickel-iron alloys and non-ferrous materials such as bronze, copper, brass, etc. should be avoided wherever possible in sulphite service. If this precaution is not taken, premature failure of either the non-ferrous alloy or the chromium-nickel-iron alloy (depending upon local conditions) may be expected. It has been observed also that accelerated corrosion of valve stems, pump shafts, etc. may be induced by certain packing materials particularly those containing graphite. Where two dissimilar metals must be used together in the presence of sulphite liquors, they should be completely insulated from each other. If this is not practicable, increased metal thickness should be provided to compensate for the increased corrosion.

### Resistance to Corrosion by Sulphuric Acid

Alloys of the types A, C and F usually provide adequate resistance to sulphuric acid as it occurs in sulphite liquors. Type A is the lowest cost alloy of this series and most readily available in the form of seamless tubes. It can be expected to give satisfactory service when precautions are taken to avoid abnormal concentration of sulphuric acid, by pre-

venting the accumulation of scale and by providing for drainage of relief lines, circulating systems, etc. during shut-down periods.

Alloys B, D, E and G shown in Table V offer an extra margin of resistance to corrosion by sulphuric acid and organic compounds. Their use is often justified under normal conditions and practically essential under severe conditions such as exist in hot acid and circulating systems. Molybdenum containing alloys such as Type B have been found to be more satisfactory over a wider range of conditions than alloys of Type A. It is believed that their improved performance in sulphite service is due to their superior resistance to corrosion by sulphuric acid and by organic acids and vapors. The molybdenum containing alloys are especially recommended where scale accumulation or other causes of stagnation cannot be avoided.

### Application of Chromium-Nickel-Iron Alloys and Service Records

A brief discussion of some of the more important uses of chromium-nickel-iron alloys in sulphite service follows:

#### Acid plant:

Pumps used in the milk of lime system are subjected to severe service, particularly those which handle both lime water and acid from the first stage of the process where abrasion as well as corrosion is encountered. Chromium-nickel-iron alloy pumps handling this material are still operating after seven years of service, where formerly bronze pumps required replacement after 9 to 10 months. Service records show that chromium-

nickel-iron alloy pumps handling the finished acid from the absorption tower have operated for as long as 4 years without dismantling for repairs, while ordinary bronze pumps used to last but 6 to 8 months. Experience has shown that the chromium-nickel-iron alloy pumps used in this application give longer service and require less frequent packing than bronze pumps.

Chromium-nickel-iron alloy pump shafts and impellers have been used successfully in bronze pumps handling tower acid without encountering difficulty from galvanic corrosion which appears to be troublesome only in hot acid.

Perforated plates and bolts of the chromium-nickel-iron alloys are being used successfully in milk of lime absorption towers. These materials are also well adapted for tubing for cold acid lines etc.

#### Digester Fittings:

Several mills using chromium-nickel-iron alloy strainers have found that they do not become clogged nearly as quickly as bronze, and are more easily cleaned. Cast chromium-nickel-iron alloy strainers require cleaning but once every 3 to 6 weeks whereas it is frequently found necessary to drill out bronze strainers every week. Strainers fabricated by welding light gage wrought chromium-nickel-iron alloys have been used indefinitely without cleaning.

Figure 1 shows a cast top sleeve at the left and a bottom sleeve at the right. Cast sleeves have the advantage of greater stiffness over fabricated sleeves of relatively light gage material. To avoid corrosion by relief gases working up between

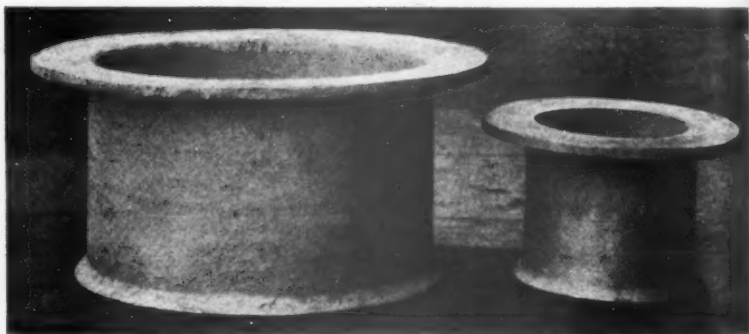


FIGURE 1—Stainless steel cast top sleeve at the left and a bottom sleeve at the right. Cast sleeves, because of their greater stiffness, have this advantage over fabricated sleeves made from relatively light gauge material.



FIGURE 2—Stainless steel bottom cross, check valves and blow-off valves in use seven years on sulphite digester.

# WHEN MOTORS DIE

# -SO DO MEN

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# INDUSTRIAL LUBRICANTS

the grouting and the sleeve, it is essential that the grouting be properly done and that the sleeves be sufficiently heavy to prevent buckling when the digester is heated and cooled. It has been suggested also that the sleeves should be cast with a series of narrow, projecting bands or ribs around the outside in order that they can be fastened more securely into the grouting. These bands would also tend to impede the flow of gases between the grouting and the metal.

Figure 2 shows a bottom cross, and check valve, and "Y" blow-off valve, all made completely from chromium-nickel-iron alloys. When this installation was made about seven years ago the chromium-nickel-iron alloy castings were made as heavy as the bronze formerly used. Since then it has been found possible to reduce the section and weight of the chromium-nickel-iron castings to about half their former values. For example, the bottom cross illustrated, which weighs about 1,175 pounds, could be replaced by a chromium-nickel-iron alloy casting weighing from 575 to 600 pounds at a cost possibly less than that of the heavy bronze casting originally used.

The chromium-nickel-iron alloy test cock shown in Figure 3 is about 7 years old, and is still as serviceable as on the day it was installed. Brass test cocks previously used on this digester gave but one week's service. Note the relatively small size of a chromium-nickel-iron alloy boss to which the cock is fastened. The bronze bosses formerly used were made about 4 times as heavy in order to withstand the severe corrosion conditions at this plant.

In Figure 4 are shown a chromium-nickel-iron blow off valve, reducing nipple and blow line, all of which have been in service about six years.

#### Relief Lines and Fittings

Figure 5 shows a part of a chromium-nickel-iron alloy relief system. The line itself is made from seamless chromium-nickel-alloy pipe (Type A, Table V). It has been in continuous use for about 6 years, and a recent careful inspection showed it to be as sound and clean as when first installed.

Early attempts to control the cooking process automatically, were frustrated by the lack of materials possessing the required resistance to corrosion by the relief liquors and gases. The development



FIGURE 3—Chromium-Nickel-Iron alloy test cock in use seven years on sulphite digester.

of chromium-nickel-iron alloys, however, has made feasible the application of automatic control to sulphite digesters.

Figure 6 shows an automatic control valve as used on a relief line. All parts of this valve coming in contact with sulphite liquors and gases are made of chromium-nickel-iron alloy. This valve has been in use for about 4 years. Incidentally, the relief line valves and fittings shown in this photograph are also made of chromium-nickel-iron alloys.

#### Hot Acid Systems

Owing to the rather severe corrosion conditions encountered in hot acid systems, alloys such as Types B, D, E, and G are recommended for use in this service.

#### Blow Pits

Target plates and blow pit bottoms comprise an important use of chromium-nickel-iron alloys in sulphite service. Figure 7 illustrates a typical installation made of  $\frac{1}{4}$ " plate. These plates have been in service for more than 4 years.

The bottom of the blow pit shown in this illustration is made from perforated,  $\frac{3}{32}$ -inch chromium-nickel-iron alloy plate. Although this bottom has been in use for about 5 years, it shows no sign of corrosion or enlargement of the perforations. Chromium-nickel-iron alloy bolts and lag screws were used to fasten the perforated plates in place. These metal bottoms have been found to reduce fiber loss, and decrease the time required for drainage. The perforations stay clean and do not require redrilling as in the case of wooden bottoms.

In addition to the uses of chromium-nickel-iron alloys in sulphite service just described, there are numerous other applications as indicated in Figure 8, in all of which these materials more than repay their extra cost in longer life and more efficient operation.

#### Nickel Alloy Cast Irons

It was not so many years ago that cast iron was listed in various tables and engineering handbooks as a material having a tensile strength of but 15 to 20,000 lbs per sq inch. Basing their calculations on these figures, engineers were obliged to design heavy cumbersome equipment which, because of its weight or that of its component parts, resulted in low efficiency and limited application.

Today, specifications calling for tensile strengths of 50 to 60,000 lbs. per in. are common, while several progressive foundries are producing machinable gray iron of even higher strength.

At one time, gray iron was described merely as being "open" or "close" grained or as a gray or white iron and was specified accordingly. Specifications for modern cast irons, however, include provisions for high strength and impact properties, specific magnetic or electrical properties, heat treatment and resistance to heat and corrosion.

#### Equalizing Hardness and Density in Castings of Unequal Section

Where castings of irregular sections are involved, it is obviously impossible to fit an ordinary cast iron so that a 1 or 2" thick section attains maximum density without an adjacent  $\frac{1}{4}$ " section becoming excessively hard and unmachinable. Through the use of nickel, however, it is possible to minimize this wide difference in structure. This is done by reducing the silicon content to a point where the heavy section attains the required density or soundness and then

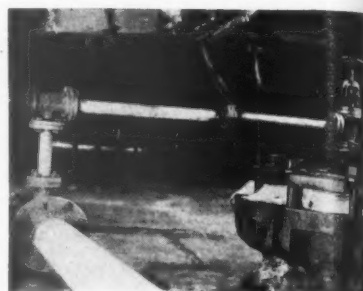


FIGURE 5—Chromium-Nickel-Iron relief line in use six years on sulphite digester.

adding sufficient nickel to prevent the thin section from becoming white, brittle and unmachinable. Pressure castings such as valves, regulator bodies, pumps, compressors and engine castings are frequently alloyed with nickel in this manner to insure uniform density and pressure tightness. Similarly, gear blanks, couplings, pistons, pulleys, sprockets and other castings of non-uniform section are alloyed with nickel or nickel chromium or molybdenum to bring about uniform hardness and machinability.

#### Increasing Wear Resistance

Nickel is used extensively for increasing wear resistance of machinable castings. This improvement is due to the hardness together with grain refinement imparted to the matrix by the nickel with practically complete elimination of hard carbides. In service, such as piston working in a cylinder, hard carbides, if present, are dislodged by friction and act as an abrasive scoring and wearing the sliding surfaces. Iron in which the matrix has been hardened to 200-250 Brinell by the use of nickel is free from these carbides, takes a fine high polish in service and resists wear considerably better than a softer iron of less uniform structure. Such an iron is well adapted for dryer rolls where a polished service is desired to improve the contact between metal and stock for increased drying efficiency and to avoid injury to the sheet.



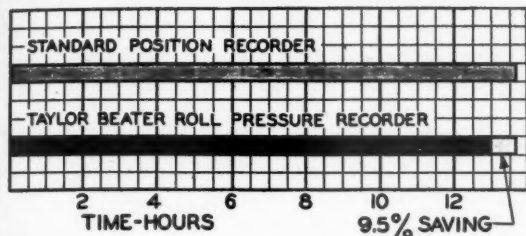
FIGURE 4—Chromium-Nickel-Iron blow-off valve, reducing nipple and blow line, in use six years on sulphite digester.



# SAVE

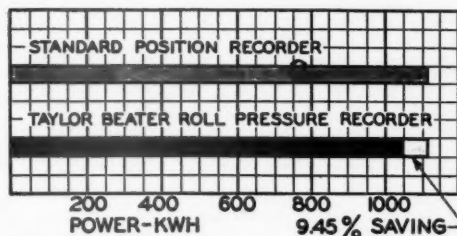
## ON BEATING TIME AND POWER CONSUMPTION

# 9 1/2%



The Taylor Pressure Recorder shows a 9 1/2% saving in beating time. This chart compares the beating time of 35 cycles with the roll adjusted according to a standard roll-position recorder—and the beating time of 35 cycles adjusted the Taylor way. This provides increased beating capacity without more equipment.

A saving of 9.45% in power consumption shown by use of Taylor Pressure Recorder. Again the comparison between 35 beating cycles with the roll adjusted the old and new ways. With the Taylor Recorder the operator avoids excessive roll pressure. Both charts show results of actual test operations in a mill.



*Eliminate expensive variables in processing by keeping uniform schedule of time and pressure with aid of Taylor Beater Roll Pressure Recorder*

**H**OW can you get a true measure of the pressure applied to stock by the beater roll? How can you avoid variations in pressures that cause variations in stock processing, beating time and the quality of the finished sheet?

Taylor Engineers today can answer these questions for you with the Taylor Beater Roll Pressure Recorder. After two years of service in mills in the United States and Canada, this Recorder has proved an aid in making finer paper.

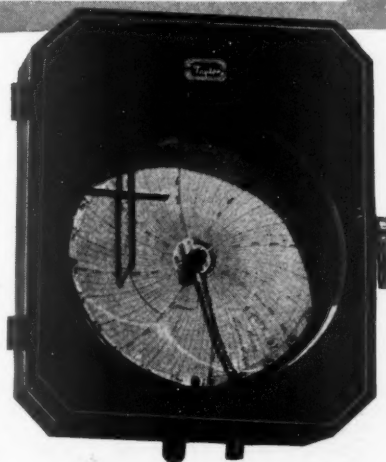
It enables the beaterman to maintain the definite pressure-time schedule best suited to each quality of pulp and each grade of paper. It successfully reduces beating time and increases a mill's beating capacity without the addition of new beating equipment. It cuts power costs and saves money by eliminating excessive roll pressures. It enables the beaterman to maintain uniform roll pressure, regardless of variations in consistency.

The two charts show you a saving of

9 1/2% on beating time and power consumption. Reduction of beating time after the installation of a Taylor Recorder has been as high as 12% in some mills. The lower power costs alone soon pay for the instrument.

Let us work with you in producing these economies in your mill and in assuring the high quality of the finished sheet. Ask for Bulletin 98104. Get in touch with a Taylor Representative, or write to Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, Eng.

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Here is the Taylor Beater Roll Pressure Recorder, another development which ranks with Taylor Grinder Temperature Control, the Taylor Press-Roll Load Recorder and the Taylor Digester Control in helping mills produce fine paper at lower cost.

# Taylor

Indicating Recording • Controlling

TEMPERATURE, PRESSURE and  
FLOW INSTRUMENTS



FIGURE 6—Automatic control valve on sulphite digester relief line made of Chromium-Nickel-Iron alloy.

The amounts of nickel to be used in improving wear resistance depend upon the base composition of the iron and the shape and section of the castings in question. The following composition is typical of that used for dryer rolls:

T. C.	Si	Ni
2.90-3.30	1.00-1.50	1.50-2.00
P	S	
0.30 Max.	0.12 Max.	

Chromium, together with suitable proportions of nickel, is frequently added to cast iron designated for wear resistant plates, rolls and other miscellaneous parts requiring hardness along with machinability and strength. Typical nickel chromium cast irons of this class contain from 1.25 to 2.25% Ni and 0.75% Cr. Specific compositions depend upon the thickness of the castings and properties desired.

#### Improving Elastic Modulus

Ordinary cast iron possessing a tensile strength of 20 to 25,000 lbs. per sq. in. have a modulus of elasticity of but 8 to 12 million. As the strength of the cast iron is increased, the elastic modulus is likewise increased so that irons possessing tensile strength of 50 to 60,000 lbs. per sq. in. exhibit an elastic modulus of 18 to 21 million. Some investigators have reported values as high as 26 to 28 million for cast irons having strengths in excess of 60,000 lbs. per sq. in. This characteristic of cast iron offers a valuable tool to the engineer wishing to improve the stiffness of certain machine members without change of design. It might be mentioned in passing that the stiffness or elastic modulus of steels remains practically constant regardless of composition or heat treatment employed. This high elastic modulus of stiffness possible with high strength nickel alloy cast irons is a very important factor in reducing the sag, whip and camber in the long rolls now becoming increasingly common in the modern paper mill.

#### High Test Cast Irons

The effectiveness of nickel in dispersing graphite in a finely divided form is an important factor in the production of high strength cast irons. The production of gray irons having tensile strengths in the range of 38

to 50,000 lbs. per sq. in. does not present a difficult problem to the average foundry if reasonable care is observed in melting practice. High strength nickel alloy cast irons of the Ni-Tensyl type are now being produced extensively, so that readily machinable castings possessing tensile strengths in excess of 80,000 lbs. per sq. in. are commercially available. The composition can vary over a wide range depending upon the size and thickness of the castings. The addition of 0.35-0.50 chromium or molybdenum adds materially in producing uniformly higher tensile strengths. A composition range which will produce tensile strengths between 50 and 80,000 lbs. per sq. in. in castings from 1/2 to 4" in thickness is outlined below:

T. C.	Si	Mn
2.65-3.15	1.50-2.00	0.50-0.90
Ni	Cr or Mo	P
1.35-1.50	0.35-0.50	0.15 Max.
		0.12 Max.

Such irons are used extensively for gears, valves, fittings, bushings, heavy machinery frames, hydraulic cylinders etc. They are also recommended for dryer rolls and heads, turbine housings and other castings for which a high strength yet machinable iron is desired.

Calender rolls, like dryers, must possess high strength and stiffness. Usually chilled iron, similar to that used for car wheels, is employed. By employing from 2.50 to 3.50% nickel, 0.75 to 1.10 chromium and 0.20 to 0.35% molybdenum, chilled rolls may be produced having a surface hardness ranging from 500 to 600 Brinell together with excellent overall strength and improved toughness.

#### Cast Iron at Elevated Temperatures

When ordinary gray cast iron is subjected to repeated heatings at elevated temperatures, an increase in volume as much as 40 to 50% frequently occurs. This phenomenon, known as "growth" was observed over 100 years ago, but it was not until 1905 that any serious attempt was made to determine its causes. It is quite generally agreed that at temperatures below 1300°F. the growth of cast iron is due primarily to the breaking up of iron carbide into ferrite and graphite. Some investigators believe that additional growth results from the oxidation of silicon in the iron matrix. Growth resulting from graphitization is aggravated by high total carbon, silicon and nickel (if no compensating adjustment is made in the silicon content), and is retarded by high contents of chromium and sulphur.

Growth taking place above 1300°F. is attributed to graphitization of the combined carbon, oxidation of the silico-iron matrix, and the expansion of occluded gases. From the preceding comments, it appears that anything which prevents the decomposition of the combined carbon in cast iron will prevent growth. Silicon of course, strongly favors this decomposition while fortunately, the action of nickel in this respect is quite mild. Chromium stabilizes the combined carbon and when used in conjunction with nickel in a low silicon iron, a strong, tough and machinable growth resistant casting may be expected.

The high alloyed cast iron, Ni-Resist, shown in these charts offers very effective resistance to elevated temperatures. This material will be discussed separately later on.

Various types of grate bars, automotive castings such as cylinder heads, exhaust manifolds, etc., permanent molds

for metal and glass, various castings subjected to moderately elevated temperatures in industrial plants such as steel, cement and pulp and paper mills, comprise part of the field for which growth resistant castings are used extensively.

#### Corrosion Resistance

Low alloy content cast irons are widely used to obtain a moderate improvement in corrosion resistance at a low cost. The nickel and nickel chromium types usually combine improvements in mechanical properties with better corrosion resistance. Owing to their fine uniform structure, they resist, to a considerable degree, what is commonly characterized as "graphitic type" corrosion. Thus, we find cast irons containing from 0.50 to 3.00% nickel being used extensively for valves, fittings, pipe, condenser housings, pumps, etc.

A few years ago, a corrosion resistant cast iron containing nickel, copper and chromium in appreciable proportions was developed. This material, known to the trade as Ni-Resist, not only possesses excellent corrosion resistant properties, but is non-magnetic and quite resistant to heat.

Ni-Resist is made by alloying ordinary gray cast iron with substantially 12 to 15% nickel, 5 to 7% copper and 1.50 to 4.00% chromium. The preferred composition is as follows:

T. C.	2.90
Si	1.50
Mn	14.00
Cu	6.00
Cr	2.00
Mn	1.10
P	0.20 Max.
S	0.10 Max.

A summary of a few typical corrosion tests comparing Ni-Resist with plain cast iron is given in Table VII.

In the sulphite pulping industry, Ni-Resist is used successfully for gas manifolds and distributors to coolers in the acid plant, blow pit pipes, pumps, valves, pipe and fittings handling washed pulp and white water and various other applications. Excessive rusting and tuberculation commonly encountered in iron base materials is practically eliminated by the use of Ni-Resist. It cannot, however, compete with the chromium-nickel-irons (stainless type) when exposed to digester liquors. Many castings commonly made of bronze such as cylinder mold spiders and screen frames can frequently be replaced to advantage with Ni-Resist.

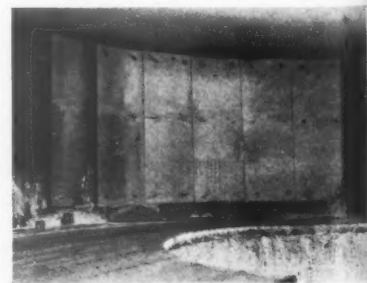
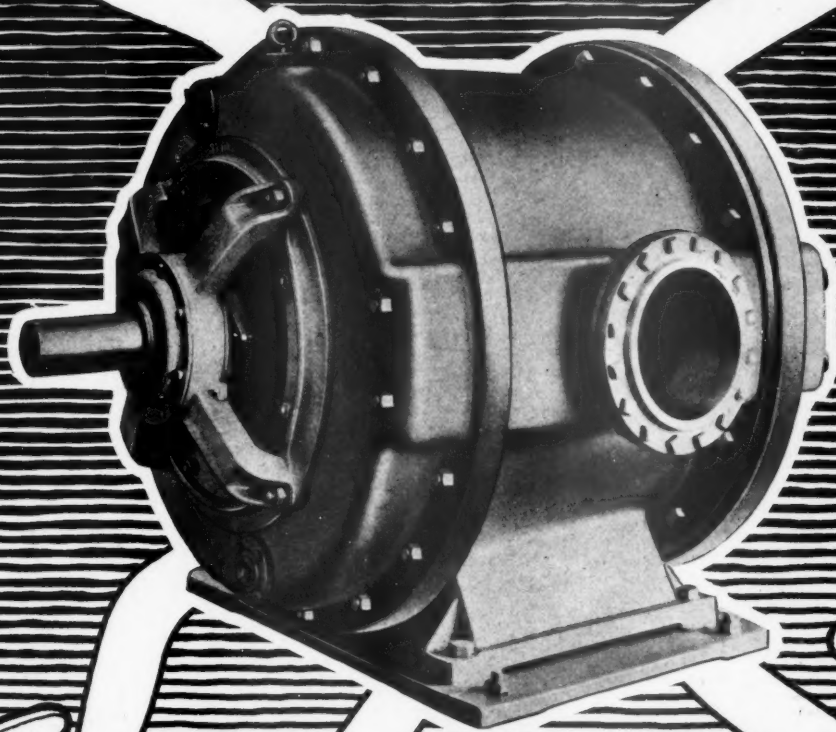


FIGURE 7—Blow pit target and bottom of Chromium-Nickel-Iron alloy >>> Target of 1/4-inch plate has been in service 4 years >>> Bottom of 1/2-inch plate has been in use about 5 years with no sign of corrosion >>> Bolts and lag screws of the same material hold the plates in place.

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THE NASH ENGINEERING COMPANY  
SOUTH NORWALK, CONNECTICUT, U. S. A.



Table VII Corrosion Resistance

Summaries of a Few Typical Corrosion Tests Comparing this Iron with Plain Iron Follow

Type of Corrosive	Weight Loss in MG Per Sq. Dm. Per Day	
	"Ni-Resist" Rusts	Cast Iron Rusts
Atmosphere .....	Superficially	Readily
Atmosphere after 30 days .....	9.5	59.7
Atmosphere after 90 days .....	7.9	63.5
Atmosphere after 1½ years .....	3 to 4	30 to 40
Water Spray (Vertical) .....	6.6	207.5
Water Spray (Horizontal) .....	17.6	244.0
Aerated Tap Water Immersion .....	7.8	67.2
3% Aerated Sodium Chloride .....	50	190
12½% Fermented Molasses Solution (after 120 days) .....	10	360
CO <sub>2</sub> -Sat'd* Hot Tap Water—95° C. ....	110	660
Ferric Sulfate .....	17,000	32,000
5% Aerated Sulfuric Acid .....	350	30,000
5% Aerated Hydrochloric Acid .....	507	26,665
10% Aerated Hydrochloric Acid .....	598	29,475
20% Aerated Hydrochloric Acid .....	1,111	33,270
Hot Caustic (from evaporator concentrating to 100-130 TW for 54 days) .....	30	430

\* Corresponding to bad boiler water.

The author acknowledges with thanks the suggestions offered by Mr. F. L. LaQue of the International Nickel Co., Inc. in the preparation of this paper. Much of the data included were abstracted from various International Nickel Co. publications and from Mr. LaQue's recent paper, "Corrosion Resistant Steels in Sulphite Pulping."

### Harter Says Athletes Make Good Workers

George Harter, superintendent of the Fibreboard Products, Inc., mill at Antioch, California, was one of two speakers at the annual banquet of the Antioch Chamber of Commerce which was held February 19th.

The Antioch mill is widely known for the large number of athletic stars working there. In his talk Mr. Harter said that these athletic men "proved themselves hard workers, dependable citizens and the type, that sticks."

### Issues New Booklet On P. & I. A. Equipment

"Pioneering," a booklet describing the equipment sold by Paper and Industrial Appliances, Inc., of New York, has recently been issued and is available to all interested who write the company at 122 East 42nd Street, New York City.

Among the types of equipment described are: the Thorsen-Hery Beater; Kamyrt Feltless West Press; the Flakt Dryer for drying pulp; Hydraulic Beating Systems; Kehoe Selective Screening and Hydraulic Beating Systems; the Evans Rotabelt; Precision Consistency Regulator and Metering Device; P & I Automatic Freeness and Drainage Control System; Neythor Press Refiner; the Poirier Weight Governor; the Sturevant Bale Pulper, and The Fair System of applying fillers to paper on the machine.

A. H. Lundberg, 3311 First Avenue South, Seattle, is Pacific Coast representative for Paper & Industrial Appliances, Inc.

### New Edition of Volume III Now Available

A completely revised edition of Volume III, Preparation and Treatment of Wood Pulp, of The Manufacture of Pulp and Paper series, is off the press of the McGraw-Hill Book Company, and is available through this journal at the regular price of \$6.50.

The new edition, the first revision since 1927, has been brought up to date in all departments. Quoting from the preface to the new edition, known as the Third Edition:

"In the decade just elapsed certain developments in pulp manufacture have so fundamentally affected the industry that a complete revision of the text becomes necessary. Plans were carefully laid, and the assistance of outstanding authorities was enlisted for the work. The Sections on Soda Pulp, Sulphate Pulp, Bleaching of Pulp, and Testing of Pulp, were entirely rewritten, and extensive changes and additions have been made in the other Sections.

"In the past ten years, tremendous advances have been made in the practice of pulp manufacture, and this revision covers such salient ones as: stacking wood, pressing and drying bark, grinding wood, screening pulp, recovery of heat and acid in sulphite cooking, the use of acid-resistant steel, new furnaces for heat recovery in alkaline pulp mills—with an important division on heat balance—new refiners for recovery of pulp screenings, much new material on bleaching, additional matter on testing pulps of extra quality for special purposes. The Section on Properties of Pulpwoods has also been thoroughly revised. The size of the book has necessarily been increased."

The five volumes on The Manufacture of Pulp and Paper are compiled and published under the direction of the Joint Executive Committee on Vocational Education, representing the pulp and paper industry of the United States and Canada. J. N. Stephenson of Gardenvale, Quebec, is the editor.

The other four volumes are: Volume I, Mathematics, How to Read Drawings, Physics; Volume II, Mechanics and Hydraulics, Electricity, Chemistry; Volumes IV and V, the Manufacture of Paper.

Members of the Joint Executive Committee are: George Carruthers, chairman; R. S. Kellogg, secretary; T. L. Crossley, G. E. Williamson and C. P. Winslow. The Canadian committee, representing the Technical Section of the Canadian Pulp and Paper Association, consists of: T. L. Crossley, chairman; George Carruthers, A. P. Costigane, Dan Davenport, C. Nelson Gain and J. N. Stephenson. The American committee, representing the Technical Association of the Pulp and Paper Industry, consists of: George E. Williamson, chairman; Hugh P. Baker, Henry J. Guild, R. S. Kellogg, Otto Kress, W. S. Lucey and C. P. Winslow.

Mr. Lucey, the only Pacific Coast man on the committee, is manager of the Grays Harbor Pulp & Paper Corporation at Hoquiam, Washington.

### Hodges Returns From California Trip

Walter Hodges, well known Coast machine clothing man, returned to Portland March 8th after spending three weeks in California, visiting mills as far south as Los Angeles.

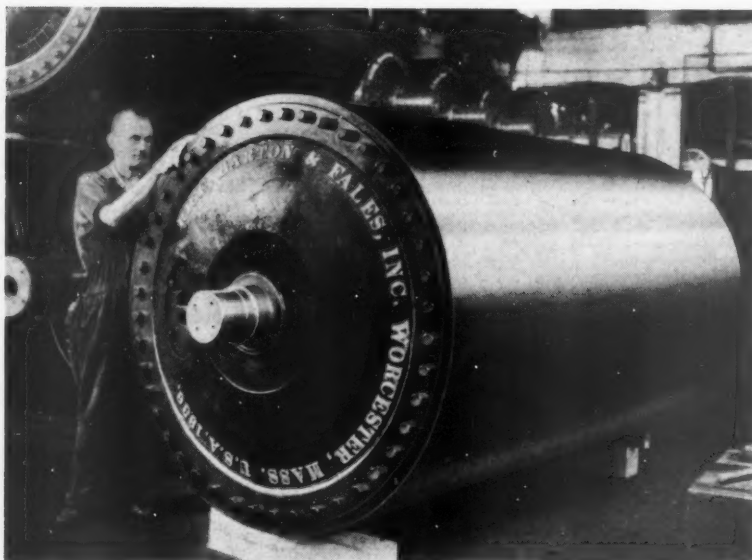
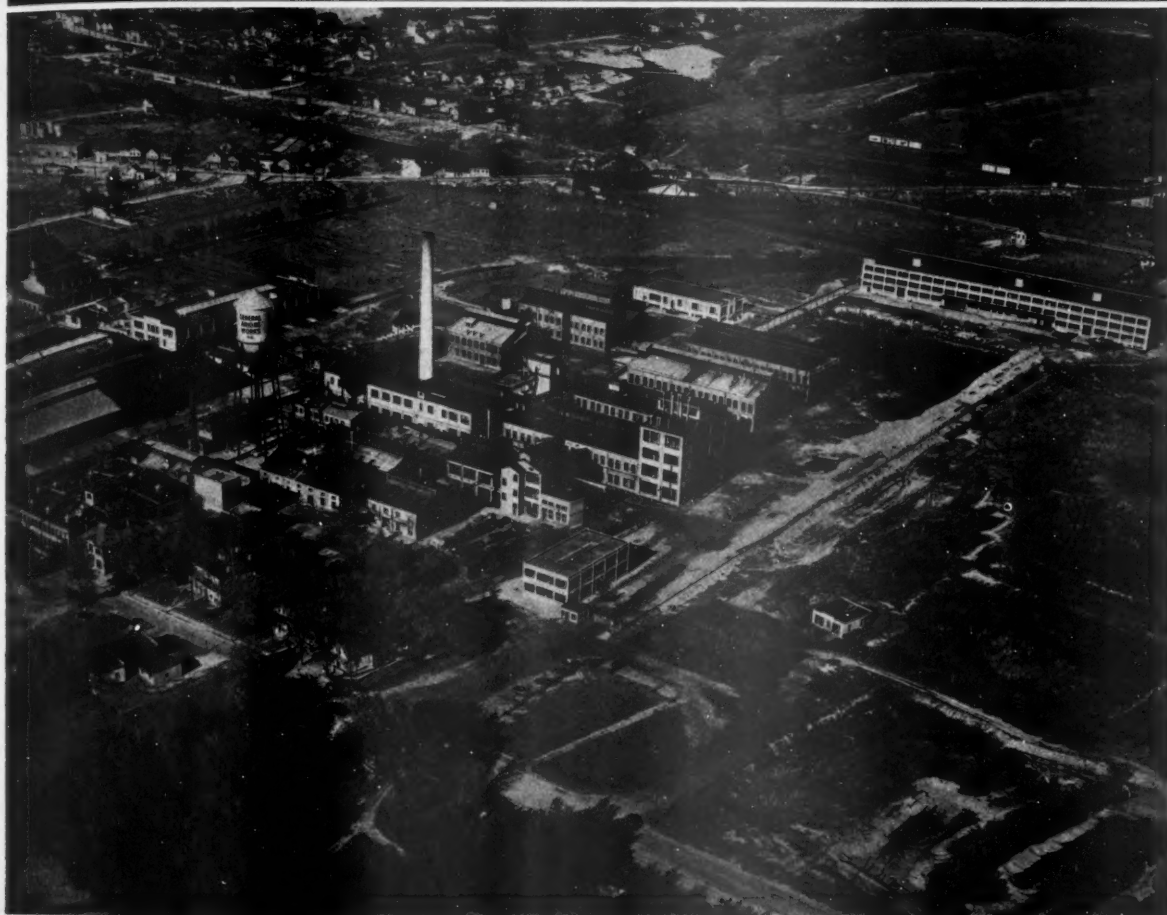


FIGURE 8. Nickel alloy cast iron increases wear resistance >>> Fine grain alloy cast iron takes high polish which increases in service and resists wear better than softer iron of less uniform structure >>> It is well adapted to dryer rolls where polished surface is desired to improve contact between the metal and the stock for increased drying efficiency.

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In this modern plant are produced  
high quality dyestuffs  
to meet all the requirements  
of the Paper Industry.



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**FOR SALE**

Complete contents of Paper Mill including two excellent Fourdrinier paper machines of standard manufacture, one trimming 104" and the other 110"; equipped with two Brownell 16"x20" variable speed engines, also four 1500 lb. E. D. Jones Beaters; two No. 2 Improved Dillon Jordans. All driven by A. C., 3 phase, 60 cycle, 440 volt motor equipments. Two vacuum pumps and two centrifugal stock pumps; complete machine shop and miscellaneous equipment. All complete and in A-1 condition subject to inspection for immediate delivery at reasonable prices on a cash basis. Interested parties please address Box No. 11, care Pacific Pulp & Paper Industry, 71 Columbia, Seattle.

**FOR SALE**

2 73" wide nine roll Stacks of Super Calenders; one Holyoke, and one Norwood Stacks. Complete and in good condition, and both equipped with 75-H.P., A. C. current, 3 phase, 60 cycle, 440 volt Westinghouse variable speed motors and control. Can be inspected and had for immediate delivery. Address Box No. 10, care Pacific Pulp & Paper Industry, 71 Columbia, Seattle.

**FOR SALE**

A 64-inch paper cutter in first class condition. Will be sold at very reasonable price. Address Redwood Fibre Products Co., 501 Weatherly Building, Portland, Oregon.

**WANTED**

Machine tender for small board machine. Must be qualified to become superintendent. Good chance to work into good position. Give particulars of experience. Address Box 12, Pacific Pulp & Paper Industry, 71 Columbia, Seattle, Wash.

### Brazilian Paper Mill To Start Large Scale Cigarette Paper Production

One of Brazil's largest paper mills will shortly start large scale production of cigarette papers. Machinery for this purpose, which was recently purchased in Germany, is now being installed and should be in full operation around the end of March. It is estimated that approximately 200 employees will be required to handle this new manufacturing unit.

The above development is of considerable significance by reason of the fact that it marks the first attempt made by the Brazilian paper industry to supply the country's heavy demands for cigarette paper. Some idea of the importance of this demand may be had from official import figures which show that approximately 1,763,680 pounds of cigarette papers are imported annually. Of this amount France supplies in the neighborhood of 70 per cent.

When in operation the new domestic mill will be in a position to supply around 50 tons of cigarette paper monthly or 600,000 kilos per year, which represents 75 per cent of the total demand. It is

understood that arrangements have already been concluded whereby the company will supply all of the cigarette paper requirements of the Companhia Souza Cruz (Subsidiary of the British American Tobacco Company) Brazil's largest cigarette manufacturers. (Trade Commissioner J. Winsor Ives, Rio de Janeiro.)

### Toovey Joins Penn Salt Company

Thomas W. Toovey recently joined the staff of the Pennsylvania Salt Manufacturing Company, one of the principal producers of liquid chlorine in the United States. He has just returned to America after an extended trip through Norway, Sweden and Finland where he visited numerous pulp and paper mills.

Mr. Toovey first became associated with the pulp and paper industry in 1923. Five years were devoted to work with the Canada International Pulp & Paper Company at Hawkesbury, Ontario, where, as a member of the research department, he served under Professor Dr. Heuser. The next six years he was employed by the British Columbia Pulp & Paper Company Limited, Port Alice, British Columbia, where his experience was of a general plant nature. During the past two and one-half years, Mr. Toovey has been in the research and bleaching departments of the Harmanec Pulp Mills at Harmanec, u. Banske Bystrice in Czechoslovakia. In his last position he was working under the direction of Dr. Ladd Rys, the bleaching expert known throughout the world.

Mr. Toovey is a chemical engineer and member of the Engineering Institute of Canada. His Canadian, American, and more recently, his wide European experience has admirably equipped him to assist the Pennsylvania Salt Manufacturing Company in handling pulp bleaching problems and their relation to the use and application of liquid chlorine. Mr. Toovey will make his headquarters with the Chlorine Sales Division located in the executive offices of the company at Philadelphia.



**THOMAS W. TOOVEY**  
Joins Pennsylvania  
Salt Manufacturing Company's  
Organization

### Curt Weil Joins Warren Steam Pump Company

Curt Weil, formerly connected with Paper & Industrial Appliances, Incorporated of New York and more recently as plant engineer with the Albemarle-Chesapeake Corporation, has become associated with the engineering department of the Warren Steam Pump Company, Incorporated of Warren, Massachusetts.

Kenneth B. Hall of Portland represents the Warren company in the pulp and paper industry on the Pacific Coast.

### French Exports of Cigarette Paper To U. S. Up 26% in 1936 Over 1935

Exports of cigarette paper from the Nantes Consular District to the United States established a new high record in 1936 of 13,277,448 pounds valued at \$3,400,059. The volume exported was 26 per cent above the 1935 figure and 1 per cent above the previous high exported in 1931. Two of the three leading exporters in the district moved their head offices from Nantes to Paris in January in order to facilitate essential contacts with government departments, labor unions, and trade syndicates, which are more than ever necessary in the present unsettled labor conditions. (Consul B. M. Hulley, Nantes.)

### Columbian Imports Of News Print in 1936

Preliminary statistics from official sources place imports of newsprint paper into Colombia during the calendar year 1936 at 5,537 metric tons. Approximately 60 per cent of these imports came from Germany, which supplied 3,360 metric tons. The remainder came principally from Sweden which supplied 575 tons, United States which supplied 541 tons and Canada which supplied 474 tons.

No newsprint paper is produced in Colombia, imports representing total consumption. (Assistant Trade Commissioner Jack B. Neathery, Bogota.)

### New Francke Flexible Coupling Catalog

Francke Flexible Couplings, formerly sold through general sales agents and now offered direct by John Waldron Corporation of New Brunswick, N. J., who are owners of the basic patents, and who have manufactured Francke Couplings since 1912, have recently made important changes in the construction of the coupling. These notable improvements are fully described and illustrated in their two-color Catalog No. 50. This booklet provides full directions for selecting a coupling size, service factors, method of computing coupling capacity and other data of interest to executives concerned with power transmission problems.

The John Waldron Corporation are the pioneers in the field of flexible couplings. Couplings are constructed for every requirement. Catalog 51 describes the Waldron Cross Type Flexible Couplings. Catalog 52 illustrates and describes the Waldron Gear Type Flexible Couplings. The John Waldron office on the Pacific Coast is located at 2860 N. W. Front Ave., Portland, Oregon, with E. G. Drew in charge.



# Trade Talk



of Those Who Sell Paper in the Western States

## BM&T Buys New San Francisco Building

Marking a business development of first importance in the Pacific Coast paper industry, the large paper distributing company of Blake, Moffitt & Towne has just announced the purchase of a new home for its San Francisco division. The building, with frontage on both Eighth and Brannan Streets, was acquired from the National Carbon Company and the transaction involved a significant move in the city's commercial development following the opening of the San Francisco Bay bridge.

Executives of Blake, Moffitt & Towne point out that the new property is ideally suited to the company's operations. The building is of substantially reinforced concrete construction consisting of four floors and a basement, with spur track facilities, ample loading platform area, and has frontage on two main arteries which serve the industrial section of the city.

Work will begin at once remodeling and putting the premises in first class condition to accommodate the comprehensive stocks of paper, paper products and twines which the company handles. In addition to equipping the warehouse, plans have been made for installation of the headquarters offices of the company's coastwide chain of 15 divisions, of which San Francisco is the parent house, having been established there as a pioneer business over 80 years ago.

No announcement has as yet been made as to when the move to the new location will be made but plans are being rushed to complete the necessary work. Increased traffic congestion in the present location on First Street, in addition to the need of more adequate quarters to meet the needs of expanding business were given as reasons for the move.

## Frank Dallam Passes in San Francisco

Frank B. Dallam, 67, veteran in the Pacific Coast paper industry, died at San Francisco February 28. He was head of the American Sales Agencies Co. and formerly of Armes & Dallam, paper jobbers. This firm was founded by Mr. Dallam's father in San Francisco in 1850. Mr. Dallam leaves his widow, one son, W. F. Dallam and a daughter, Mrs. William C. McDowell. American Sales Agencies represented the California Fruit Wrapping Mills of Pomona. W. F. Dallam represents the Fernstrom Paper Co., jobbers of Scandinavian newsprint.

## Wise of Rayburn Looks Over Coast

A San Francisco paper visitor recently was P. L. Wise of the Rayburn Manufacturing Co. of Philadelphia.

## Committees On Program For Del Monte, May 13-15th

Paper jobber executives along the Pacific Coast should be busy right now working on committee reports to be presented at the twentieth annual convention of the Pacific States Paper Trade Association at Del Monte May 13-15.

W. W. Huelat, Los Angeles, Blake, Moffitt & Towne, president of the association, named the following committees:

**PROGRAM FOR 1937 CONVENTION**—Louis A. Colton, Zellerbach Paper Co., San Francisco, chairman, with membership composed of the following regional secretaries: H. M. Hamblen, Spokane; O. P. Hesser, Salt Lake City; R. R. Morris, Portland; W. B. Reynolds, Los Angeles, and E. L. Skeel, Seattle.

**FINANCE**—I. Zellerbach, Zellerbach Paper Co., San Francisco, chairman; C. H. Beckwith, Carter, Rice & Co., San Francisco; Vernon C. Scott, Packer-Scott Co., Portland; W. E. Taverner, Taverner & Fricke, Los Angeles and A. W. Towne, Blake, Moffitt & Towne, San Francisco.

**MEMBERSHIP**—Roy E. Banks, Long Beach Paper & Notion Co., Long Beach, chairman; Victor E. Hecht, Zellerbach Paper Co., San Francisco; F. E. Jeffries, Tacoma Paper & Stationery Co., Tacoma; John E. Jones, Western Newspaper Union, Salt Lake City; J. W. P. McFall, Portland, and A. B. Rogers, Spokane Paper & Stationery Co., Spokane.

**STANDARDIZATION**—Philo K. Holland, Zellerbach Paper Co., Los Angeles, chairman; J. A. Gruner, Blake, Moffitt & Towne, San Francisco; John E. Jones; James W. Murphy, Carter, Rice & Co., Portland; J. W. Thompson, Blake, Moffitt & Towne, Seattle, and R. M. Waters, B. G. Ewing Paper Co., Spokane.

**FINE PAPER EXECUTIVE**—C. H. Beckwith, chairman; E. E. Embree, Carter, Rice & Co., Seattle; John E. Jones; A. G. Mohn, Zellerbach Paper Co., Spokane; Philo K. Holland and C. L. Shorno, Blake, Moffitt & Towne, Portland.

**WRAPPING PAPER EXECUTIVE**—O. W. Mielke, Blake, Moffitt & Towne, San Francisco, chairman; A. W. Akers, Zellerbach Paper Co., Seattle; C. H. Fricke, Taverner & Fricke, Los Angeles; W. D. McWaters, Zellerbach Paper Co., Portland; G. O. Rogers, Spokane Paper & Stationery Co., Spokane, and A. P. Spitko, Carpenter Paper Co. of Utah, Salt Lake City.

**Committees Paralleling Those of National Paper Trade Association Wrapping Paper Division:**

**BAG**—P. J. Dixon, Dixon & Co., Salt Lake City, chairman; A. W. Akers, B. G. Ewing, B. G. Ewing Paper Co., Spo-

kane; T. J. Finerty, Zellerbach Paper Co., San Francisco; Alfred Osmund, Osmund & Co., Portland, and R. R. Whiteman, Blake, Moffitt & Towne, Los Angeles.

**GUMMED TAPE**—Vernon C. Scott, Packer-Scott Co., Portland; B. G. Ewing, F. E. Jeffries, A. R. Kuhn, Zellerbach Paper Co., Fresno; R. E. Le Grant, Taverner & Fricke, Los Angeles and Joseph Primbs, Consumers Paper Co., Pocatello.

**SPECIALTIES**—J. W. Thompson, chairman; P. J. Dixon, Dixon & Co., Salt Lake City; L. J. Doherty, Zellerbach Paper Co., Sacramento; Lew Gronich, General Paper Co., Los Angeles; J. W. Murphy, Carter, Rice & Co., Portland and D. M. Woodward, John W. Graham & Co., Spokane.

**TISSUE AND ALLIED PRODUCTS**—A. P. Spitko, chairman; L. C. Conner, Blake, Moffitt & Towne, San Francisco; W. D. McWaters, A. G. Mohn, W. E. Taverner and J. W. Thompson.

**TWINE**—W. G. Lambert, Zellerbach Paper Co., Salt Lake City, chairman; F. W. Breyman, Zellerbach Paper Co., San Francisco; J. W. Graham, J. W. Graham & Co., Spokane; Alfred Osmund; J. W. Thompson and Russell E. Walsh, Blake, Moffitt & Towne, Los Angeles.

Following are the Pacific States Paper Trade Association representatives on the fine paper commodity committees of the National Paper Trade Association:

**BLOTTING PAPER COMMITTEE**—C. L. Shorno.

**BOOK PAPER AND OFFSET COMMITTEE**—E. R. McQuaid, Pacific Coast Paper Co., San Francisco.

**BOX COVERING COMMITTEE**—Gordon Murphy, Zellerbach Paper Co., Los Angeles.

**BRISTOL, BLANK, BOARD AND TAG COMMITTEES**—Frank C. Stratford, Zellerbach Paper Co., San Francisco.

**GROUNDWOOD COMMITTEE**—Charles Pritchard, Bonestell & Co., San Francisco.

**NEWSPRINT COMMITTEE**—W. G. Lambert, Zellerbach Paper Co., Salt Lake City.

**WRITING PAPER COMMITTEE**—F. E. Jeffries.

H. Arthur Dunn, San Francisco, is secretary of the Pacific States body.

## Maxwell Visiting Plant At Camas

D. L. Maxwell, San Francisco, The Tissue Co., expected to spend part of March in the Pacific Northwest and include a visit to the firm's plant at Camas. Mr. Maxwell has not attended the Pacific States Paper Trade Association convention at Del Monte, but expects to go this year.

### Paper Representatives Hear Business Principles Discussed

"The Fundamentals of Business," a twenty minute, illustrated discussion by H. M. Philbrook was the feature of the bi-monthly luncheon meeting of the Los Angeles Paper Mill Men's Club held February 25 in the Chinese Room of the Los Angeles Athletic Club.

President Ed N. Smith presided. Preceding the featured talk of the meeting, Mr. Smith introduced Harrison Mathews, head of the Los Angeles Sales Managers Association who gave a few minutes speech on the threat of a coming labor aristocracy and the obligations of business leaders to their salesmen, whose assistance can be invaluable in off-setting the possible domination of business by the productive division through labor.

Announcement was made of the April meeting and the election of officers which will be held at that time. Al Hentschel is chairman of the election committee. Discussion was proposed of whether the precedent will be followed of moving officers up the line into upper offices and electing only a treasurer or a new one established of electing an entire new slate.

Mr. Smith then introduced the guest speaker for the day, Mr. Philbrook (no relation of Frank R. Philbrook of this organization). Mr. Philbrook outlined the basic laws which underlie success in business. The first principle, he stated, is service, a service to be rendered some in exchange for remuneration. Related to this are the three basic factors: the quality of the service, the quantity and the mode of conducting the business to render the service. Factors related to these points, he outlined, are yourself, the other fellow, your business and your merchandise. Beginning with yourself you must develop the part of your mind in which you think, remember and imagine. From here you must go to consider the emotional part of the mind. In this such qualities are found as loyalty, justice, hope, faith and courage. From the knowing part of the mind comes ability and from the emotional part reliability. Third you must look to the physical aspect of your being. From this comes the vital quality, endurance. And last you must develop your volitional faculty, your will to do. In closing Mr. Philbrook tied the four qualities together ability, reliability, endurance and action to create the idea, area, build for yourself a greater and better area of growth and success.

### Jaggard Names Organization Committee

A committee consisting of W. J. Gray, Paterson Parchment Paper Co. and T. C. Macormack, Strathmore Paper Co., has been named by B. P. Jaggard, Hammermill Paper Co. and Grays Harbor Corporation to aid in the formation of a paper mill men's club in San Francisco similar to the millmen's jovial organization in Los Angeles. It is expected the committee soon will set a date for the first meeting.

### Colton Tries Northwest Climate

Louis A. Colton, vice-president of the Zellerbach Paper Co., San Francisco, was a visitor in Seattle and Portland in February.

### Ed O'Neil To Be Married

Wedding bells will ring late this month for smiling Edw. L. O'Neil, assistant to H. Arthur Dunn, San Francisco, secretary of the Pacific States Paper Trade Association. The bride-to-be is Miss Claire Grimes of San Francisco.

### Connor Honored At Banquet in Los Angeles

A farewell dinner given by members of the wrapping paper department of Blake, Moffitt & Towne, Los Angeles, marked the departure of Mr. L. C. Conner when he left to take up his new duties as sales manager of the wrapping paper department at the San Francisco division of this pioneer Pacific Coast wholesale paper concern. His appointment took effect on January 15, 1937, when Mr. Walter G. Busse, sales manager of the wrapping paper department in San Francisco resigned his position to establish his own converting business.

Since 1928 Conner has been assistant to R. R. Whiteman, manager of the wrapping paper department of Blake, Moffitt & Towne's Los Angeles division.

Conner is a native of Montana and after leaving school joined his father in the printing business at Everett, Washington. When the United States entered the World War he joined the artillery. At the close of the war in 1918 he started his career in the paper business with the Mutual Paper Corporation. In 1928 this large Seattle concern was purchased by Blake, Moffitt & Towne and formed an important link in the chain of divisions which today number fifteen. At the time of this transaction Conner was transferred to the Los Angeles division where he remained until his recent transfer to the headquarters office in San Francisco.

To Mr. Conner's post in Los Angeles Mr. W. I. Winn has been appointed as announced by Mr. W. W. Huelat, manager of the Los Angeles division.



**L. C. CONNOR**  
Sales Manager  
Wrapping Paper Department  
Blake, Moffitt & Towne,  
San Francisco.

### Cashmere Elected President of Paterson

C. H. Cashmere, treasurer and director of sales of the Paterson Parchment Paper Co., was elected president of the company of the annual meeting in Bristol, Pa., Jan. 27. Mr. Cashmere retains his other two positions and also became president of the Paterson Pacific Parchment Co. of San Francisco, of which W. J. Gray is treasurer and general manager. Mr. Cashmere was in San Francisco in March to attend the annual meeting of the Pacific coast company on the 10th of this month.

### Mrs. Olmsted To Live in Hawaii

Mrs. Bonnie Wing Olmsted, daughter of William Wing, president of the Fox River Paper Co., sailed for Honolulu from San Francisco in February and the newspapers said she intended to make her home in the Hawaiian Islands.

### Wylie Covers Territory

A trip around the territory, including stops at Salt Lake and Seattle, was made recently by C. H. Wylie, San Francisco, Pacific Coast representative of the Riverside Paper Corp., the Rex Paper Co. and other manufacturers. Mr. Wylie was in style and took to his bed in Seattle with the influenza.

### Peck Delivering Talks To Craftsmen

Talks on paper are being given before various Craftsmen's Clubs on various coast cities this spring by Donald Peck of the Kimberly Clark Paper Co. of Neenah, Wis. He was accompanied on his lecture tour by Fran Jenkins, Los Angeles, coast representative of Kimberly-Clark.

### Loring Sees Manning's Customers

Albert S. Loring, vice-president of the John A. Manning Paper Co., Troy, N. Y., visited the paper trade in San Francisco in February. The Manning company makes specialty papers for industrial purposes and sell direct.

### Bothwell To Talk To Printers

G. P. Bothwell of the Hammermill Paper Co. of Erie, is expected on the Pacific Coast this month to talk before printers' groups.

### Arthur Zellerbach Dies in San Francisco

Arthur Zellerbach, member of the well-known Zellerbach paper family, died in San Francisco March 3, aged 49. Mr. Zellerbach was not actively connected with the Zellerbach Paper Co. He was a brother of Isadore and Henry Zellerbach and an uncle of J. D. and Harold Zellerbach.

### Edwards Joins Weyerhaeuser Pulp Division

M. Lowell Edwards, engineer for the Bingham Pump Company of Portland, Oregon, for a number of years, joined the engineering department of the Pulp Division Weyerhaeuser Timber Company at Longview on March 8th.

### Walker Visits Pacific Northwest

E. L. Walker, vice-president of the Kieckhefer Container Company, with offices in Milwaukee, Wisconsin, was a Coast visitor early in March.

Mr. Walker came West to visit his mother whose home is in Tacoma, Washington.

### Harwood Visiting In Pasadena

F. J. Harwood, president of the Appleton Woolen Mills of Appleton, Wisconsin, is visiting his daughter in Pasadena.

### General Paper Adds To San Francisco Staff

General Paper Co., San Francisco, recently added George V. Smith and Gerald Brown to its sales staff. Smith formerly was employed by the Carpenter Paper Co. of Utah, in Salt Lake, where his father is connected, also. Brown was with Blake, Moffitt & Towne.

### Wilson Joins General Paper In Los Angeles

Mr. Lou H. Wilson, formerly of the Wilson Paper Company, became affiliated with the General Paper Company at Los Angeles March 1st. Mr. Wilson will be in charge of sales in the coarse paper department. He brings with him a wealth of experience in the wrapping paper and coarse paper business and knows the Los Angeles territory well.

### Huelat Attended National Paper Trades Meeting

W. W. Huelat, manager of the southern division of Blake Moffitt and Towne, attended the National Paper Trades Association meeting in New York.

### O'Keefes Are Home

Thos. A. O'Keefe, general manager of the Sierra Paper Company of Los Angeles, brought his wife and new baby son back to the coast early in March. The youngster was born in the east.

### Banks Working On Del Monte Registration

R. E. Banks, vice-president of the Pacific States Paper Trades Association, has been very busy securing advance registrations for the coming May meeting of the association in Del Monte.

### Abrams Commuting Los Angeles to San Francisco

Sam Abrams, president and owner of the United States Paper Company of Los Angeles, has been doing a lot of commuting between San Francisco and Los Angeles lately by plane.

### G. Paganini Dies in San Francisco

C. M. Paganini, president of the General Paper Co. of San Francisco, recently lost his father, G. Paganini, by death.

### Murray Attended New York Convention

C. L. Murray of San Francisco, sales manager of the Everett Pulp & Paper Company, attended the 60th annual convention of the American Pulp & Paper Association which was held at the Waldorf-Astoria, New York, February 22-26th.



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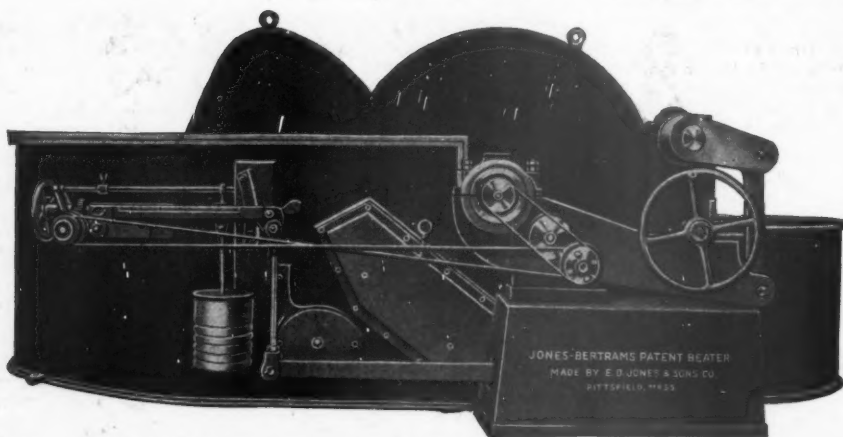
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### Harold Zellerbach Comments On South American Trip

Harold L. Zellerbach, president of the Zellerbach Paper Company, is back at his desk after a two months trip that took him and his wife to eight of the South American republics.

"To my mind," said Mr. Zellerbach upon being questioned about his trip, "South America is the land of real opportunity for two reasons; first, there are the great natural resources, practically untouched, and secondly, there is the tremendous inequality between supply and demand caused by the inability of the present limited population to absorb even a portion of the bounty of the land. For a quick comparison, consider the Argentine as against the United States. Approximately the same in area, the United States boasts a population of one hundred and thirty million against fourteen million people in the Argentine. With the same conditions holding true in practically all of the other South American states, it needs but little thought to appreciate the potential possibilities of this 'promised land.'"

He talked about the wonders of a flight across the Andes, about the great modern apartment houses going up in many of the cities, about the enthusiasm of the people for sports, games, amusements of every type.

"Peaceful" is the word that Harold Zellerbach used to describe the session of the National Paper Trade Association meeting in Chicago, which he attended before returning to San Francisco, peaceful because of the optimistic attitude of the merchants towards an increasing volume of business. "However," Mr. Zel-

lerbach said, "the merchants are not optimistic about their own earning position. The truth of the prophecies made by other merchants and myself over a year ago, regarding 'profitless prosperity' are becoming more and more evident because of increasing costs of doing business, and the fact that the merchant has been unable to figure these increases in his selling price due to severe competitive conditions."

"This year will be a year of selective selling. Merchants generally feel that it is now unnecessary to sell merchandise without a satisfactory return, even though the appreciation in the value of the warehouse merchandise itself will go a long way towards taking up some of the increased costs of operation. This appreciation, however, must not be used to gauge the month to month operations of the merchant and his need for more trading margins."



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